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Original Communications.

TREATMENT OF INFANTILE DIARRHEA.

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The diarrhea of infants and children is, it must be appreciated at the outset, a symptom with an etiology into which enter many and diverse factors. Each case must be systematically and separately studied, and if possible the etiology in each case decided upon, and the cause or combination of causes removed, or at least made less potent for evil. To recognize the cause and to place the child under conditions suitable to recovery is the first duty of the physician, and the neglect of this principle often means the progressive development of alarming symptoms and the serious and perhaps fatal illness of the patient. It is not enough to simply write a prescription for bismuth and opium in doses suitable to the age of the patient, depending alone upon these drugs to effect a cure.

Infantile diarrhea is as rare in winter as it is common in summer, and the higher and more continuous the heat the greater number of cases one meets with. A child ill with any form of diarrhea should be always given plenty of fresh air, and the presence of fever does not prevent its being kept outdoors, in a cool yard, square, roof garden, or porch. Removal to the seashore or country is almost invariably beneficial, or if this is impossible, keep the child in a cool, darkened room during the hottest hours of the day,

and outdoors in the less heated morning, afternoon, and evening hours.

During early childhood, until the baby is two and a half years of age, its digestive organs are peculiarly susceptible to infection and inflammation, both on account of their delicate structure and the demands of the rapidly growing infant's body for nutrition. Poor feeding is, next to summer heat, the most potent etiological factor. The food may be too strong or too weak, given too often, or not often enough. The bottles should be boiled and carefully cleaned each day, and the nipples everted and thoroughly washed. Infants who are spending the summer months in the city should not have their food increased too rapidly in quantity or quality during the warm months. It is safer to give too little than too much. It is much safer to pasteurize the milk in warm weather. If the milk supply is very near at hand, and every precaution is taken at the farm and in transportation, unpasteurized milk may be used, but for the large majority of cases it is better to pasteurize during the hotter months. Always if possible secure a fresh supply of milk every twenty-four hours, as milk kept for more than this length of time may if pasteurized not turn sour, and yet contain many deleterious bacteria. Old milk, impure milk, or milk with a very high bacterial count is a dangerous food for children in summer, and is a frequent factor in the production of diarrhea.

Infants sick with diarrhea may for the purpose of treatment be divided into two groups:

Group 1. This would include the cases in which the gastrointestinal tract shows only a superficial inflammation of the mucous membrane, the submucous and muscular tissues are little if at all involved, ulceration unless dependent upon a preëxisting condition is not present, and bacteria do not penetrate below the superficial intestinal mucosa. The symptoms in this group are those of toxemia. The constitutional symptoms may be very severe or of only moderate severity, and the cases may run a very rapid course, ending fatally, or a subacute course with a favorable termination. A strong, well developed, and healthy child living under the best hygienic conditions, previously properly fed and receiving early and judicious treatment, runs much less risk than a child previously delicate, living under poor conditions of hygiene, badly fed, and perhaps suffering from previous attacks of diarrhea.

In this group of cases the symptoms may be mild or very severe. Nervous symptoms are present to a greater or less extent. The stools are usually at first offensive, later in the worst cases becoming watery, almost colorless. The temperature is usually high, and in cases of true cholera infantum, temperatures of 105° and 106° F. are met with. The child is weak, depressed, and in the dangerous cases in a condition of profound shock and collapse. Blood and mucus are usually absent from the stools; vomiting is usually frequent—first the contents of the stomach, then bile-stained mucus. The prognosis in the mild cases is favorable, and usually ends in recovery. The cases of true cholera infantum are in my experience quite rare, and often end fatally. Everything depends upon the prompt and judicious treatment of the case. It is important to remember that we are not dealing with an intestinal inflammation or ulceration, but with a case of gastrointestinal intoxication. Prompt treatment will usually result in a rapid improvement in the symptoms of the milder cases, but even in these if the symptoms persist for more than a few days there may develop deep-seated intestinal inflammation and ulceration.

The treatment of this group includes prophylaxis, comprising proper feeding, good hygiene, plenty of fresh air, if possible sending children to the country during the hot summer months. Give all children, especially during the summer months, an abundance of cool, sterile water to drink. Remember to be cautious about increasing the quantity or quality of the infant's food in hot weather. Much has been accomplished in Philadelphia by the establishment of milk stations, where pasteurized milk is given to the poor, or at most only a nominal price charged. Milk of different percentages of fat, sugar, and proteid is delivered to the mother, varying according to the age of the child and its digestive ability. Enough for only twenty-four hours is allowed at one time. Undoubtedly this plan has prevented many mild and severe cases of intestinal toxemia. No charity has appealed more strongly to the citizens of Philadelphia, and surely none is more worthy.

The history in diarrhea cases often shows more stools during the day than at night; this points out a lesson. All children with diarrhea should be kept at rest, not allowed to walk about. They may be out-of-doors

in a hammock, baby coach, or crib. Very few bedclothes are required, and a single garment of light flannel is sufficient dress for the baby. If the hands and feet are cold warm gloves and stockings may be worn even in summer, and hot-water bags applied to the extremities. A warm bath should be given the sick infant every day for cleanliness. All soiled napkins should be well boiled and treated with an antiseptic solution.

We must remember that we are treating a case of intestinal toxemia, and not a case of inflammation or ulceration of the bowel. We must appreciate the fact that during the first twenty-four or forty-eight hours of the illness, even in the mild cases, all digestion is completely arrested. All milk should be stopped, it matters not whether the infant is breast- or bottle-fed. During this period sterile water, barley water, or white of egg in water may be given. After thirty-six or forty-eight hours, breast-fed infants may be allowed to nurse every four or six hours, the nursing lasting two or three minutes, and being preceded by a moderate amount of sterile water; if the case progresses favorably, breast feeding is to be cautiously increased, the time of each feeding gradually increased, and the interval between feedings shortened. During this period, when the child is receiving only scant nourishment from the breast, it is being given moderate amounts of whisky, sterile water in abundance, and barley water or albumen water. In bottle-fed babies the milk must be discontinued for a much longer period of time. After the first forty-eight hours the barley water or albumen water can be replaced, or at least partly replaced, in these cases by animal broths—mutton broth is probably the best, although beef broth, or freshly expressed beef juice, is often of advantage; in a smaller number of cases chicken broth answers a useful purpose. After the acute symptoms have completely disappeared, dextrinized gruels are often of advantage, and these should be later followed by very weak milk mixtures, preferably peptonized. These milk mixtures should be very gradually increased, and my individual plan is to increase the quantity of the mixture first, then after a fairly good-sized quantity is being taken, to cautiously increase the strength of the milk mixture, until an amount approximating the quantity suited normally to the age of the patient is reached. Up to this point all milk should be thoroughly peptonized, and after this point peptonization is gradually discontinued. The treatment by drugs is of importance, and yet it is necessary to point out the fact that while a physician never neglects the giving of drugs, he often does neglect the other adjuncts to drugs—fresh air, rest, proper food or restriction of food, bathing, and stomach and bowel washing.

The treatment should begin with a laxative —castor oil two teaspoonfuls to a child six months old, a tablespoonful to one eighteen months old. If much vomiting is present, instead of the castor oil fractional doses of calomel one-sixth grain every hour until one grain is given. In mild cases the boiled water given by the mouth usually rapidly cleanses the stomach by being vomited; if vomiting persists the stomach should be immediately washed out. Severe cases of cholera infantum should always, if seen early, receive at once the benefit of a stomach washing; if, however, the cases are not seen early, and the child is in extreme shock, the slight depression incident to stomach washing might be dangerous, and prompt stimulation hypodermically may be at once necessary to prevent immediate death. Irrigation of the colon is of advantage in every case. The child should be as nearly horizontal as possible, and a rectal tube passed well up in the bowel. The large bowel is thoroughly irrigated every twelve hours with a gallon of normal salt solution—a teaspoonful of salt to every pint of water makes a suitable mixture. The irrigating fluid should be used at about 100° F. and allowed to flow very gently and slowly into the bowel, in order to distend the bowel gradually, and so have as much as possible retained in the colon before it is expelled. After the acute and dangerous symptoms have subsided a single irrigation each day is sufficient.

Strychnine, one two-hundredth of a grain, given hypodermically and repeated in three hours, is of advantage in the worst cases. Hypodermoclysis, eight ounces of thoroughly sterilized salt solution being used and repeated in twelve hours, is also beneficial in tiding the desperate cases over a critical period. High temperatures are well controlled by ice-water enemata, one pint being used. This disturbs the child less than a bath. Whisky, thirty drops every two hours to a child of one year, the quantity being reduced if the child shows sign of improvement. Small doses of morphine, one one-

hundredth grain, and atropine, one five-hundredth grain, may be given hypodermically, and repeated once two hours later if the child is not improving. If the pain is severe and the bowel movements very frequent, small doses of paregoric, ten drops, half a drop of deodorized tincture of opium, one-half grain of Dover's powder, may be given every two to six hours, sufficient only being given to ease the pain and relieve excessive peristalsis. Opium should always be given in a separate prescription, and never in sufficient quantities to entirely check the bowel movements, or to produce distinct stupor. The drug which controls diarrhea best is undoubtedly subnitrate of bismuth. It is best given in mucilage of acacia and peppermint water. A child of one year should receive a drachm and one-half in twenty-four hours, and a child of two years two drachms in twenty-four hours. Smaller doses are in my opinion entirely useless. In the treatment of either the mild or severe cases, anything, whether drugs or food, that disturbs the child's stomach and interferes with its digestion does more harm than good.

Group 2. This group, which includes the large majority of cases of diarrhea, embraces all cases in which a distinct inflammation takes place in the intestinal mucous membrane, submucous tissues, or muscular coats. It occurs most often in summer, but is seen at all seasons of the year, and is not infrequently a secondary disease following or occurring with many of the severe illnesses incident to infant or child life. It may follow acute intestinal toxemia, and is often seen in cases of malnutrition, rickets, or any condition or disease lowering the vitality. It may develop suddenly in a child previously healthy as the result of summer heat, poor hygienic surroundings, or improper feeding. The studies of Shiga, and later those of Flexner, prove that the so-called acid and alkaline Shiga bacilli are capable of producing this form of intestinal disease, and the coli group is, when certain conditions exist in the bowel, also distinctly active. The bacteriology of ileocolitis and ulceration and membranous inflammation of the intestine is, however, a very complex one, and it seems highly probable that many bacteria often found in the intestinal tract become potent factors once a distinct inflammation is present. When the Shiga bacillus was found, blood and mucus were usually present in the stools. The seat of greatest intensity of the lesions is the lower ileum and colon. The intestinal lesions are usually in direct proportion to the severity of the infection and the duration of the symptoms.

The symptoms are vomiting, pain, moderate fever, diarrhea. The stools are first fecal and thin, becoming yellowish-green, green, and perhaps containing mucus and blood; the number varies from four to twenty in twenty-four hours. The child gradually loses weight and strength, is fretful, cries, the tongue becomes coated, perhaps dry and furred, and the wasting and loss of strength is progressive. The severe shock and collapse, with profuse watery stools, and temperature of 104° and 106° F., differentiate it from the severe toxic cases. The symptoms vary greatly in severity, from a mild attack lasting a week to one lasting several months.

The treatment includes all that has been previously written in regard to breast and cow's milk, care of bottles, nipples, the best hygiene, keeping the child at rest, allowing an abundance of cool water to drink, and giving the child a daily tepid bath. Much is accomplished in these cases by taking the child to the mountains, country, or seashore —in fact it may be necessary to obtain the benefit of this change of air for an infant who has been sick for several weeks and has lost much strength and flesh if its life is to be saved. The nutrition of these cases is often a difficult problem. Breast-fed infants must be removed from the breast for thirty-six or forty-eight hours, when the breast may be given for two or three minutes every four or six hours, and the amount given cautiously increased as previously shown in the cases of intestinal toxemia. Infants fed on cow's milk should not be given milk in any form until the stools show a distinct improvement. Milk may then be cautiously given in small quantities, largely diluted with barley water or water, and the quantity increased slowly. Barley water, albumen water, animal broths, beef juice, panopepton, dextrinized gruels, are all of advantage during the period when the milk is withdrawn. It is important to carefully supervise the child's diet for a long while after convalescence is apparently established.

Many relapses are undoubtedly caused by giving milk too early, and by the too rapid increase in the amount of food taken other than milk. All food should be stopped for the first thirty-six or forty-eight hours of the

illness. A large dose of castor oil, one-half ounce to a child eighteen months old, should be given; or if much vomiting, one grain of calomel given in six doses one hour apart. The castor oil or calomel should be given in sufficient doses to thoroughly sweep out the food and decomposed material from the gastrointestinal tract, and no medicine having a tendency to check intestinal peristalsis should be given until the oil or calomel has thoroughly acted. The inflammation and ulceration are situated in the lower few feet of the ileum and in the colon, and rectal irrigation with normal salt solution is of benefit in almost every case. A gallon of saline solution is none too much to use at one time, and the more acute the case and the more severe the symptoms, the more benefit is realized from the irrigation. Daily irrigation is sufficient. Instead of the saline solution we may occasionally use five grains of nitrate of silver added to a gallon of water, or one tablespoonful of tannic acid. Subnitrate of bismuth in ten-grain doses every two hours to a child one year of age is none too much, and is the drug that should usually be given continuously during the entire course of the disease. It is an astringent, sedative, and an antiseptic, and rarely fails to do good. In combination with bismuth may be given salol—to a child of one year one grain every two hours, to a child of three years two grains may be given at a dose. It is undoubtedly an excellent intestinal antiseptic, and while one cannot hope in this disease to render the intestinal tract antiseptic, still the administration of salol in my opinion partially accomplishes this object. If tenesmus is present laudanum, four drops in four ounces of starch water, may be used as an enema. Stimulants will be required in the large majority of cases, the size of the dose depending upon the age of the child. An average dose to a child of one year would be 15 drops every three hours, to a child of three years 20 to 30 drops every three hours. In the more chronic cases dilute hydrochloric acid and pepsin given after each feeding seem to be of distinct benefit, possibly by improving stomachic digestion. Opium is required in all but the mildest cases; it should never be given in a prescription in combination with other drugs, and only in sufficient doses to relieve severe pain and check excessive peristalsis. Small doses repeated every few hours are better than larger quantities at longer intervals.

1713 SPRUCE STREET.

THE CAUSE AND TREATMENT OF SUMMER DIARRHEAS IN INFANTS.

BY J. P. CROZER GRIFFITH, M.D.,
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Recent years have turned the attention of physicians so strongly to the etiological influence of bacteria in many diseases that we are prone to forget that, even in those admittedly of bacterial origin, there may be other causes which, if not primary, are at least powerful in their action. This statement is certainly, I believe, true of diarrheal disturbances. The influence of the emotions in causing diarrhea in adults is well known. Severe diarrheal, or even dysenteric, conditions can be produced by a number of drugs, such as arsenic, corrosive sublimate, and different vegetable and mineral purgatives, and even many foods possess a powerful laxative action. Indeed, even when bacteria are known to be the cause in a given case, we must remember that it is after all the chemical action of resultant toxic substances produced, rather than by the mere presence alone of the bacteria, that the diarrhea is occasioned.

Confining ourselves more directly to the subject under discussion, the summer diarrheas of infancy, we must, I think, admit that we have at least two powerful etiological factors to consider: (1) bacterial growth, and the poisoning by toxins produced; (2) the action of hot weather upon the infant organism.

1. Bacteria as an etiological factor are generally recognized as the primary cause of these diarrheas. Milk is a peculiarly susceptible culture medium, and germs multiply in it in hot weather with enormous rapidity. Even in winter the average dairy milk is loaded with microörganisms, and in summer it is only by the greatest care that their growth can be restrained in the best of milk within limits which an infant can safely manage. That it is particularly in summer-time that the excessive infantile mortality from diarrhea develops, and that it is especially in bottle-fed infants that this occurs, proves the powerful influence which bacterial growth possesses. An additional proof is the great lessening of mortality among the poor to whom specially pure and properly modified milk is supplied.

It is to be remembered in this connection that not all bacteria in the milk are equally harmful to the infant. The ordinary germs

of the lactic acid group, producing the souring of milk, are by no means so harmful as are certain others. This is well shown by the undoubted value of properly prepared buttermilk in diarrhea, a subject to which the physicians of the continent of Europe have given so much attention of recent years. In the preparation of this either a pure culture of lactic acid bacteria or a small portion of soured milk containing these germs is added to the milk before churning takes place.

The lactic acid bacteria clearly exert an inhibiting influence upon the growth of the germs of the bacillus subtilis group, of which the colon bacillus is one. It is this group which is particularly dangerous to infants; the more so, too, because the bacteria may abound in milk without producing any souring or other easily recognizable evidence of decomposition.

2. Yet there is certainly an action apart from the growth of germs which can be attributed only to the influence of heat upon the organism. This is shown, for instance, by the fact that even breast-fed babies are much more disposed to diarrhea in summer than they are in winter, and also by the well-known greater difficulty in checking a summer diarrhea in bottle-fed babies in summer, even after all milk has been withdrawn from the diet. The sudden reappearance of severe diarrhea in convalescent infants not yet returned to a milk diet, corresponding with a sudden elevation of the temperature of the air, is another proof of the powerful action of heat upon the organism; as is the occurrence of cases of true cholera infantum, which seem to develop almost exclusively in the hottest weather. These conditions have been attributed to the greater increase of the bacteria within the intestine at such times. But there is no greater temperature present within the body in summer than in winter-time, and any increase in growth of bacteria in the intestines in the former season can be explained only on the ground that certain other influences permit of this. These influences are to be sought in part in the interference with the digestive functions, the result of the depressing effect of heat, which permits of this growth. In a certain number of cases, however, particularly those of sudden increase of diarrhea with extreme and rapid exhaustion of the infant contemporaneous with the existence of an excessively heated term, I am convinced, in spite of the general view to the contrary, that the cause is rather to be sought in the direct effect of heat upon the nervous, especially upon the vasomotor, system of the child.

The conclusion in brief is, then, that the very great majority of cases of summer diarrheas owe their origin to bacterial influence, but that the direct effect of hot weather upon the organism is generally a powerful secondary cause, and in some instances the chief one.

Treatment.—With the understanding of the underlying etiological principles the nature of rational treatment becomes apparent.

1. Most important is *preventive treatment.* First of all, milk should be as pure and as free from germs as possible. No amount of sterilizing of bad milk will make it good, since the poisonous chemical substances produced by the bacteria remain unchanged by heat. Next, to prevent further growth of germs and their entrance into the digestive tract, with further development there of toxins, a modified sterilization should be employed for all milk in summer-time, with the exception of that produced by special dairies whose product is notably free from bacterial contamination. Even this milk is often better sterilized in the hottest weather. Pasteurization is the method to be recommended—*i.e.*, partial sterilization at temperatures of 155° to 160° F. This process, however, requires exactitude. No rough and ready method answers. Milk cooler than the figures given is not benefited, and that heated above it has its natural ferments destroyed. Either a special pasteurizer, such as Freeman's, is required, or the employment of a thermometer throughout the process. One must remember, too, that while pasteurization destroys the bacteria, the *spores* of the subtilis group are unaffected. Unless, then, the milk is carefully preserved *ice-cold* these spores, unchecked by the presence of lactic acid germs—since these have been killed—will multiply even faster than in raw milk. On this account commercial pasteurized milk, as supplied by dealers, is in my opinion absolutely to be shunned. No one knows how thoroughly the process has been performed, or how carefully the milk has been guarded afterward. The name gives to the users a false sense of security. All pasteurization should be done at home.

2. The *treatment of the attack* is simple in its principle, difficult in its application to different cases. The first indication is the

absolute withdrawal of milk from the diet. This withdrawal should last one or several days, according to the case, such foods as cereal decoctions, albumen water, beef juice, and the like taking its place. If there is any reason to suspect that decomposed milk is still present in the digestive tract, purgatives should be employed, such as calomel, castor oil, or magnesia in some form. Castor oil is one of the most useful, provided there is no vomiting and the stomach tolerates it well. It may be repeated on each of several consecutive days if required.

Then follows a return to the milk diet. The important principles governing this are, first, that it should not be hastily commenced; secondly, that it should be gradually accomplished. Where there is inflammation of the bowel, as indicated by continuance of fever after the evacuation and regulation of diet, and by straining and mucous stools, local treatment is most important My preference is for large enemata of starch water, two level teaspoonfuls to the pint, given tepid. A quart or more should be employed, distending the colon as much as possible. Normal saline solution is good in many cases. Injections may be given once or twice a day. They should always be intermitted after a few days in order to see what nature will do without them. Sometimes they are not well borne. In some cases suspensions of bismuth in mucilage of acacia are of service, especially if the disease tends to become subacute.

I make little local use of the stronger astringents, such as nitrate of silver and tannic acid. Most children do not need them, and in any case they are only suitable for patients who have developed the chronic form of enterocolitis.

With regard to medication by the mouth, the first indication, as stated, is to empty the digestive tract. After this the employment of astringents is useful, such as bismuth subnitrate in doses of 6 to 10 grains every two or three hours, to which may well be added in many cases some vegetable astringent such as kino or krameria, or the newer tannic acid compounds, such as tannigen and tannalbin, etc. Occasionally salol in small doses is of service, combined with the bismuth. The subgallate of bismuth may also be tried, as may beta-naphthol bismuth, but I have not found them generally superior to the older preparation.

Where fever has ceased and watery diarrhea persists opium is invaluable. We have now reached a stage where the irritation caused by food has passed and we are dealing with a too rapid intestinal peristalsis as a prominent factor. Many an infant will fail to respond to treatment unless opium is used. Caution is always necessary, both in the selection of the proper time and the grading of the dose Many diarrheal cases in greatly debilitated states are peculiarly susceptible to opium, and the initial dose should always be small. In the choleraic cases opium is absolutely necessary to check the extremely rapid loss of liquid from the system. Here, too, enteroclysis is of value in order to add to the amount of liquid in the blood.

All this is the direct treatment of the disease. We have still to bear in mind such medication as general and cardiac stimulation, and the like. This is, however, purely symptomatic and need receive no special attention here, except to say that both alcohol and digitalis are generally well borne by infants in relatively large doses and that enough must be used to obtain results. Here, too, must be emphasized the fact that many of the liquid peptonized food preparations on the market are strongly alcoholic, and that this must always be taken into account when giving them. Their chief action is that of stimulation, and their food value is very slight.

Finally we must consider the relief of the condition as far as it depends upon the high temperature of the weather. Nothing is more surprising than the rapid benefit which often follows removal of the child to a cooler climate. Untold good has been accomplished by seaside hospitals, river-steamboat charities, and the like. It is sometimes absolutely imperative to make the patient cooler. Among the poor in cities much can be accomplished by guarding from the heat of the midday sun, the passing the day in the parks, allowing the child to spend the evening in its coach in the open street, and the like. The use of water is important in this connection. Tub baths of a temperature of 90° or less, according to the case, may be given several times a day. In actual heat-stroke with great hyperpyrexia of the body much cooler baths may be employed. I have known of infants recovering through cold baths when the body temperature had reached even 110° F.

In all our treatment the child must be considered as an individual. No absolute rule can be laid down. The resourceful physician will often meet with success even under the most unfavorable conditions.

REMARKS ON THE PREVENTION AND TREATMENT OF SUMMER DIARRHEA IN CHILDREN.

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The annual output of professional warning to careless and improvident mothers and municipalities has arrived. The regular waste of infantile life, which reaches its highest mark during July and August, from the various forms of diarrhea renders this obligation a supreme necessity to the medical profession. This high death-rate, which culminates during the summer, is partially due to our studied indifference. This is affirmed after long study of the cause of death among young children during the heated term, because the fact is deeply impressed upon me that a large proportion of untimely deaths are due to conditions quite preventable.

If a death is clearly preventable, then the child should be saved, and if it can be saved we should be active in our efforts to instruct the parents early, long before the "twig is bent." This thought gains strength when we contemplate how very few children die from summer diarrhea who enter upon the heated term and remain in the city with well nourished bodies, regularly fed upon substantial food. This is especially true of breast-fed children, even though the ignorant mother is irregular in her feeding and her personal hygiene. It is not so much the finger-and-thumb rule of feeding, if the child is only fed by instinct and not by some mathematical combination of commercial origin. It is plainly recognized that the breast-fed child rarely suffers. The picture changes when a poor, anemic, bottle-fed child enters the heated term. The death list from summer's heat is largely drawn from those under one year of age, and they are most probably puny, anemic, or rachitic before the summer begins. The death of such children is sufficient evidence. They are prepared for death. The physician is in part to blame; it is his duty, on the approach of hot weather, to sound the note of warning to all parents who possess children whose vitality is below par. Ofttimes physicians are exceedingly careless of the progress of children under their care. He should see beyond the transient acute ailment for which he is asked to prescribe. Suggest an outline of procedure that will fortify the child physically for the trials of summer weather. Impress upon the mother the seriousness of continuing with a process of nutrition which if it does not add weight, systematic development, comfort, and growth is dangerous and sure to bring disaster with the first acute illness by reason of the child's lessened resistance. It is the physically defective who are torn away by the first hot breath of summer.

The method of prevention against summer diarrhea has been given so much publicity by the various municipalities that every mother should be well informed as to the value of fresh air, the hygiene of the bath, the various methods of keeping and preserving milk, the necessity of change of dress and room—all of which are well outlined in our text-books. Circulars even are furnished to the public, so that if a reasonable amount of intelligence could be exercised many lives would be saved. The most practical prophylaxis, however, is intelligent management of the child from birth. This necessarily demands a certain amount of intelligence and interest on the part of the young mother. The greatest source of failure in preventing illness and death among young infants is the stupidity of the young mother. If the prospective mother would receive instructions before her maternity on the hygiene of young life, we would not so frequently fail in saving her sick child.

The logical prophylaxis, therefore, for summer diarrhea is an intelligent mother who will anticipate every slight ill of her child, one who knows well the whole chapter of infantile hygiene. She will know how much gain in weight her child has made every week. She will know how many hours sleep per night her child secures. She will recognize the cry of illness and be able to distinguish it from the cry of hunger or temper. In short, she will seek to maintain a systematic uplifting of the child, thus fortifying its young life against the enervating, exhausting summer heat.

If we are to be a nation of bottle-fed babies we must insist upon intelligence taking the place of the decadence of breast feeding.

As to the actual treatment of summer diarrhea, it is absolutely true that mismanagement of food is the cause. It is not the heat, it is the food that is the primal factor. Diarrhea is purely a food disorder, and consequently is preventable. If treatment is instituted at once it is rarely fatal. More deaths occur from diarrhea than all the contagious, erup-

tive diseases; and all this sacrifice could be avoided by prompt scientific treatment.

I have no space to give a discriminating diagnosis between summer diarrhea and dysentery. Dysentery is a contagious, water-borne disease, characterized by tenesmus, blood and pus in the stools. This is not the case with summer diarrhea, whose chief etiological factor is bad food or good food poorly or irregularly administered, and acting, by reason of its irregularity in partaking, as a poison. The whole wonder of this disorder is the simplicity of the treatment. It is indeed trite to repeat the old injunction, *remove the cause.* I think, because of the simplicity of the treatment, physicians frequently forget to give explicit instructions to the nurse or mother, and thus inadvertently inaugurate a dangerous chronic condition. Removal of the cause means a clear, clean alimentary tract. Fermenting food, which causes auto-intoxication, must be removed promptly and thoroughly to prevent a local trouble becoming a serious constitutional infection by reason of the power and activity of the intestinal absorbents.

The removal of the local trouble is not an easy matter when we consider the anatomy of the intestinal tube. The numerous transverse folds in the intestine, two inches in length, two-thirds of an inch in depth for expanding absorbent area, make it difficult to dislodge the putrescent mass. I have found pea-pods and grape-seeds massed together, resisting six gallons of normal salt solution by an enteroclysis. The cause may be sour milk, modified milk, sweets, taste of cheese, cake, etc., imprisoned in the folds of the bowels. This must be removed before the storm is over. Diarrhea is nature's attempt to remove the offender, similar to profuse lacrimation to remove a grain of sand lodged in the conjunctiva.

The most satisfactory drug—old-fashioned indeed, but we have not found a superior—is castor oil. I find it a safe exploring agent, mild and soothing. For a child of from three to six months, one teaspoonful; a child one to two years old, a tablespoonful. The oil is best given hot. Place a dose of oil in a cup, add a few drops of extract of vanilla, and then fill the cup with boiling water. When cool enough to swallow, the floating oil, pleasantly disguised by the odor of vanilla, can be skimmed from the top. Some physicians find virtue in the oil administered cold. For three hours before and after the child should be very quiet and not receive food or drink, to insure the retention of the oil. If the oil is rejected, one or two hours must elapse before the dose is repeated. When the oil has done its work the treatment is supplemented by a normal salt enteroclysis. The temperature of the water is governed by the temperature of the child, but never below 80°, even if the child has a temperature of 105°. The quantity given is usually too small for results. Continue the flow of water as long as any foreign matter is escaping. Frequently high fever and diarrhea continue by reason of hard imprisoned scybalous masses which have resisted the oil and the high enema. If so, my injunction is still in force: continue as long as the water dislodges any foreign matter. I mention a case in which five gallons were necessary to thoroughly clean the tube and bring about complete rest; this, of course, was an unusual case.

After the cleansing and purifying action of the oil and enteroclysis has been accomplished the child should be kept quiet; ice-bag to head and hot-water bag to feet; *no food* of any kind for thirty-six to forty-eight hours, unless it be hot water in very minute quantities. The injured bowel must gain physiological rest, and the most important item is this long rest or starvation, as the parents will tell you. Feeding within the time specified is very certain to precipitate the train of trouble again. In young infants hot water from a spoon or dropper, or possibly the bottle, is more grateful to the stomach than cold water; in older children, cold water has its value as a therapeutic measure. Very hot water given in small quantities has also good results in arresting vomiting.

The intestinal tube cleaned out and the rest gained by starving the child for two or three days, the tide is turned in your favor in fully 50 per cent of the cases. The call of opium is now recognized by the continued peristalsis; but it is never to be used until you are absolutely certain that no foreign matter remains in the tube. Paregoric in ten- to thirty-drop doses, to be repeated as indicated, will complete the first chapter. I have found but little use for astringents or intestinal antiseptics after I have gained a clean tube. The most vulnerable spot in the management of summer diarrhea comes at this point, namely, the feeding of the child suffering from diarrhea. As I have said before, the injured bowel must have time to recover itself, and even after the two or three days' rest the food must be suitable to the depressed power of digestion. I have come to avoid albumen water, beef juice,

and milk, but have much faith in barley *gruel*, not barley water. This must be cooked three hours until it has a body; use little sugar or milk. It may be given to older children with butter and salt. For a child of one year, give four ounces of barley gruel from the bottle every four hours; five feedings in twenty-four hours. Plenty of water may be given between the feedings if the child seems to demand it. Every case of acute diarrhea should get well within one week or ten days at most. From that time on general hygiene should take up the burden and reconstruct the child by a season at the seashore or mountains.

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THE PROPHYLAXIS AND TREATMENT OF INFANTILE DIARRHEA IN SUMMER.

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Measures for the reduction of mortality from gastrointestinal affections during the hot months resolve themselves into four main divisions:

The preparation of the infant to withstand a possible attack.

The feeding of the infant during the hot weather.

Prompt and rational measures at the beginning of the illness.

Treatment and feeding during the attack and in convalescence.

Years of observation force the conclusion that the larger part of the children who die from gastrointestinal disease in summer, and more especially of those who die in spite of early and careful attention, are children who have entered upon the hot weather with insufficient vitality to withstand an acute disease. These are the anemic and the rachitic as well as those who show varying degrees of malnutrition, together with subacute or chronic gastrointestinal disturbance. Fraught as infancy and childhood are with dangers from acute disease, it is the unquestioned duty of the physician to build up those who show even moderate departures from normal health against a day which may come when least expected. Normal red blood and well fed bones and muscles, which mean increased powers of resistance, are the best insurance against the effects of those acute diseases to which the pale and flabby child falls an easy victim. Iron and cod-liver oil in the winter and spring months outvalue, and may render unnecessary, astringents and stimulants in summer.

The care of the digestive system is equally important. The experienced physician can select from among his patients those least likely to escape during the summer. The mothers of these children should receive serious instruction. A good clean milk of guaranteed purity and freshness should be secured if possible, even if it involves a sacrifice. With the inception of the first moderately warm days all milk, even the best, should be pasteurized, or heated just short of the boiling point, rapidly cooled in running water, and then placed on ice. All feeding utensils must be kept scrupulously clean. The food formula should be adapted to secure easy and perfect digestion. Those ordinarily in charge of the infant should be instructed that unusual restlessness, unexplained malaise, the actual eruption of teeth, and even the slightest digestive disturbances should be met instantly by dilution of the contents of the infant's bottle with one-half or one-third of boiled water, gradually returning to the usual strength when the symptoms have passed. On particularly hot or depressing days dilution of the usual feeding should be the rule, the intervals should be somewhat longer, and boiled water should be given freely. The cream or fat percentage in the milk may be reduced with advantage; less is required in hot weather than in cold. Food which the infant digests or manages to tolerate on cool days may cause trouble when all the functions are depressed by the heat. The refusal of an infant to take any or part of its bottle may be but nature's protest.

With older infants on a mixed diet the same principles hold good. Food should invariably be of the simplest and most digestible nature. Milk, eggs, broths, thoroughly cooked and strained cereals, rice, stale bread, some of the plainest forms of unsweetened crackers, and if the child be well along in the second year, scraped rare meat and the pulp of green vegetables passed through a colander, give it sufficient variety. Sweets, raw fruits, preserved, dried, or canned foodstuffs should be prohibited; they are liable to disturb the digestion, and anything, or part of anything, which cannot be thoroughly digested passes

through the intestinal tract like a foreign body, and may start up an irritative diarrhea to favor its evacuation.

Mothers should be instructed that no gastrointestinal disturbance, however slight, can be safely neglected. Serious attacks may arise insidiously. The rule which experience has taught to be the safest is that at the first appearance of looseness of the bowels in summer, with or without vomiting and feverishness, milk in every form whatsoever, including breast milk, should be stopped at once, the bowels swept clean with castor oil, syrup of rhubarb, or calomel in divided doses, and the infant given boiled water or a thin, well cooked barley water until it is seen by the physician. The milder attacks may be checked with scarcely any other treatment; not so with most, however. The drug which does the most good and the least harm is bismuth given freely as follows:

℞ Bismuthi subnitratis, gr. x;
Syr. rhei aromat., ♏ iv;
Aquæ, q. s. ad ℥j.

One teaspoonful of this is given an infant of any age every hour until the frequency of the stools lessens or the stools are discolored by the bismuth, then every two hours. Rarely the bismuth passes unchanged without darkening the stools and is then ineffectual. When this happens it may be corrected by giving a few one-grain doses of sulphur præcipitatum.

Opium should rarely be given while temperature exists. It locks up in the bowel what nature is endeavoring to eliminate. Its chief use is to quiet peristalsis. If required at all it should be given separately, so as to be readily controlled. When the stools do not exceed four a day it should be stopped. Dover's powder gr. ¼ to ½ every two to four hours serves the purpose well. Excessive transudation of fluid (rice-water stools) is best combated by the hypodermic use of atropine gr. 1-900 and morphine gr. 1-100.

Vomiting if persistent may be favorably influenced by washing out the stomach with water containing bicarbonate of soda ʒ ss to Oj. High irrigations of the bowel are chiefly useful in the severer cases in which the temperature is high, elimination of the toxic material incomplete, or there is much mucus in the stools. Normal saline solution (sod. chloride ʒ j to the pint) should be used. A single free irrigation often suffices, unless the purpose be to supply fluids to the system when the stomach is intolerant. If continued for local effect upon the bowel, once a day, or at most twice, is sufficient. When there is colitis, especially with blood in the movements, tannic acid, one-half to one teaspoonful, may be added to each pint of the saline solution.

The nutrition of the patient is important. All milk having been stopped at the onset, barley or rice gruels are the best food, and less favorable to the multiplication of putrefactive bacteria in the intestine. These gruels if desired may be dextrinized. The addition to each feeding of a teaspoonful of one of the fluid nutritive preparations on the market which are mildly alcoholic prevents or relieves undue prostration and depression. Mutton broth and egg-albumen water are second choices if the carbohydrate food is refused. Boiled water may be given freely.

Resumption of milk in the food requires good judgment. It is both a mistake to give milk before the acute symptoms have subsided and to withhold it for a long period after they have done so. Nursing babies may usually begin to take the breast for short periods after twenty-four to thirty-six hours. In the artificially fed, after the acuter symptoms of vomiting, fever, and too frequent stools have yielded to treatment, and appetite is returning, small quantities of cow's milk, never more than one-sixth, may be added to the cereal gruel. The time for this varies from thirty-six hours in mild cases to three or more days in severer ones. Increases of the milk should be gradual, determined by the condition of the stools, and several days at least should elapse before the usual strength is approached. Returning appetite and improving stools are the best indications. Remember that the digestive tract has been severely disturbed and that time is required for restoration of function, and even for repairs. Occasionally milk in the smallest quantities will not be tolerated for a long time.

During convalescence digestion may be assisted by pepsin and dilute hydrochloric acid, or other digestive preparations. During this period the acid seems to be of value in controlling any continued frequency of the stools. For this latter purpose the insoluble preparations of tannic acid are also helpful.

With prompt employment of these simple measures the small mortality is almost entirely confined to marasmic and otherwise markedly debilitated infants.

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THE DIETETIC TREATMENT OF THE SUMMER DIARRHEAS OF INFANTS.

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In considering briefly the dietetic management of the summer diarrheas of infancy, I desire to lay stress especially upon a few salient features of the dietetic treatment which are most commonly overlooked, or at least are considered of relative unimportance. The drug treatment is fairly well agreed upon at the present day, and will doubtless be most thoroughly discussed by other contributors to the present symposium, so that I shall scarcely touch upon it, but will confine my paper to the dietetic aspects of the treatment. These will be discussed under the following heads: (1) The importance of the prompt recognition of early symptoms, and preventive measures; (2) diet during the acute stage; and (3) diet during convalescence.

1. *The Importance of the Prompt Recognition of Early Symptoms.* — Depending upon the source and the degree of infection, and the virulence of the microörganisms concerned, the symptoms of summer diarrhea—to use the most descriptive and convenient if not always the most accurate term—begin either insidiously or acutely with greater or less severity. A single feeding of impure milk, though followed by a continuation of feeding of the usual degree of purity, may initiate an infection that takes several days to produce intestinal symptoms of sufficient significance to attract the mother's attention. Stoppage of milk feeding under these conditions often seems to the parent an unnecessary hardship, and too often the physician is inclined to wait for more serious symptoms before definitely stopping the milk. At any time of the year this is a dangerous practice, but in the hot weather of our summer months no irregularity of digestion is so trivial as to admit of temporizing.

Carefully fed infants whose digestion is normal and whose feeding mixtures are prepared from fresh and clean milk acquire an almost clock-like regularity in their habits. Vomiting does not occur, and the bowel movements are yellow and come at a regular time of the day. Any divergence from this regular routine is a signal of disturbance which should be promptly investigated and explained to the satisfaction of the physician. The vomiting of a feeding, an increase in the frequency of movements, even without a marked change in color at first, or the appearance of a foul-smelling, white, curdy, or greenish movement should be the signal for the immediate withdrawal of milk food, until an accurate diagnosis can be made. In the case of initial vomiting nature often, by the simple act of rejection, prevents the entrance of infected milk into the intestine, and a brisk clearing out of the prima via, combined with a temporary withdrawal of milk feeding until the danger is past, may suffice to cut short at its inception a severe infection of the intestinal canal. In some cases, too, the intestine seems able to throw off naturally a mild infection, and after a time, especially if the following milk feedings are pure, the movements return to normal without special treatment, excepting perhaps the usual dose of castor oil. Dealing as we are, however, with the generally more virulent infections of summer, this expectant form of treatment is unsafe and, as it usually happens, unjustifiable. By continuing milk feeding under these circumstances we are simply playing with fire. In the presence of an infection every drop of milk that passes into the baby's intestine provides an increasing medium for the multiplication of the now swarming bacteria. Prompt withdrawal of milk strikes at the root of their growth. It is therefore far better to deprive a hundred infants for a short time, unnecessarily, of their usual food than to permit even one to become more severely infected by continuing its milk feeding.

Incidentally the medicinal treatment of these cases may be mentioned. If after the initial vomiting the stomach continues irritable, a careful lavage of the stomach is a reasonable procedure. Even under these circumstances castor oil should be given, for it frequently happens that enough is retained to pass onward and clear out the intestine. If it is retained and acts satisfactorily, producing movements that are not greatly altered in color, or containing white milk curds produced by the rapid passage outward of undigested milk from the upper intestine (as always happens after the prompt action of castor oil), small doses of calomel (gr. 1-24 to gr. 1-12) three or four times a day for several days act well in infants over six months in disinfecting the intestine. In younger children calomel should be used with great caution, as it is apt to aggravate the intestinal irritation. If the first sign of trouble is shown by the appearance of a bad movement a single lavage of the bowel with salt solution, given

with the ordinary short tip of the fountain syringe under a pressure of not more than eighteen to twenty inches, may be administered while waiting for the oil to act.

If the mother has not been in close touch with the physician prior to the appearance of the early symptoms of infection, it now becomes his duty to inquire into the source of milk supply, to ascertain the method and time of delivery at the house, and to investigate and correct if necessary all the details of preparation and keeping of the food. In many instances it will be found that the milk bottles are left on the door-step at a very early hour of the morning, and remain there without ice for several hours before the servants are astir. Even the purest grades of milk may be thus rendered unfit for a baby's feeding before actually reaching the hands of the mother. If this fault cannot be remedied by agreement with the milkman, the milk should be delivered in a refrigerator box or, better, later in the day. When it is understood that city milk delivered before six o'clock in the morning has been stored by the dealer since the preceding morning when it reached town, it will be readily seen that such milk is at least thirty-six hours old before the first bottle is fed to the infant.

The question of pasteurization must now be considered. After an experience such as detailed above, it will usually be desirable to pasteurize the milk mixture. This seems to be an especially important precaution to advise for a baby about to be taken to the seashore or country, where the source of milk is to be changed. Many a baby in perfect condition is taken away from home for its health to fall a victim to milk infection from "fresh country milk." Even if the milk is to be obtained almost directly from a dairy safeguarded by modern methods of management, home pasteurization is a wise precaution during hot weather. The recent careful investigations of Pennington, Evans, and others have shown that commercial pasteurization of milk, far from being an advantage, is constantly attended with the danger of graver infection while the milk is passing through the terminal parts of the apparatus, and the bacterial content may be notably higher at the termination of the process than that of the original milk. Home pasteurization, on the other hand, if properly managed, is free from this danger, and may be recommended in any case when the conditions of the milk supply are open to criticism.

2. *Diet During the Acute Stage.*—In the presence of distinct symptoms of summer diarrhea milk feeding should be stopped at once. The usual substitute employed in America is a thin cereal gruel made from either barley or rice. Barley water is most commonly used, but rice water in many cases has seemed to me to be somewhat more nourishing, and I have been frequently surprised to find how well nutrition was maintained in children who had taken nothing but a fairly thick rice water for several weeks. The French school, of which Marfan stands as a representative, advocates the administration of pure boiled water only. Many infants, however, will refuse plain water, but may take readily barley or rice water, alone or flavored with some concentrated liquid food preparation or a liquid beef extract (one drachm of any of these to the bottle). The quantity to be given at a feeding is generally somewhat smaller than the usual bottle feeding. If it is well taken the interval may be three hours; if the baby takes only a part of the bottle prepared, the interval should be shortened to two hours. Sometimes older infants will object to the color rather than the taste of the substitute mixture, but will take it readily if the bottle is given in the dark or is covered with a white muslin jacket. On this watery diet an infant can subsist readily for five or six days, or longer if necessary. Albumen water is useful in the vomiting cases, but the egg albumen readily undergoes decomposition in the intestine and often adds to the looseness of the movements, especially in younger infants. Its use should be suspended as soon as the stomach becomes quiet. A peculiar fetor attends the movements of infants taking albumen water, which disappears as soon as this diet is stopped.

The length of time during which fresh milk in any form should be withheld is a most important consideration. I am thoroughly convinced that the usual teaching to cautiously resume milk after twenty-four or forty-eight hours' abstinence is most erroneous. The permissible time to resume milk is after the bowel movements show that all signs of the infection have passed away, and this may be in a week or two weeks, or more. It is certainly a fact that many cases that would have recovered promptly and completely are caused to relapse and even to become aggravated into a more serious and often fatal reinfection by the physician's eagerness to return to milk feeding. These

are the cases that I am most apt to see in consultation after the condition of the baby has become desperate, and when unfortunately there is little to be done. In speaking thus of milk I include cream, which as a rule is much more dangerous than milk, on account of its greater age and higher bacterial content, and also whey, which is somehow regarded as not having any of the cultural properties of milk. Moreover, after a milk-borne infection there frequently results a decided intolerance to fresh milk that may necessitate its exclusion from the diet for a long time. I have frequently seen infants after recovering from a summer diarrhea that could not take milk for months, or only such small proportions that nutrition could not be maintained, but thrived well on condensed milk or some patent food that ordinarily I would not think of giving to a healthy infant.

For these reasons I am in no hurry to get back to fresh milk feeding. A baby in good condition of nutrition before the attack can subsist well enough upon the cereal gruel for five or six days. At the end of this time hunger begins to assert itself, and it becomes imperative to add something more substantial to the diet. About this time the sulphide of bismuth reaction has become evident in the stools, and when the latter are reduced to one or two mushy black discharges a day I feel satisfied to proceed to the addition of what I have found to be the safest intermediate food—condensed milk.

3. *Diet in Convalescence.*—The better grades of condensed milk possess several advantages of value at this time. It is sterile, and in the weaker dilutions carries low percentages of fat and proteids, which are more easily appropriated by the weakened digestive organs than the higher combinations usually tried at first when fresh milk feeding is resumed. The sugar content, too, seems to be particularly valuable in these cases. For beginning condensed milk feeding a proportion of 1 part in 32 is usually ordered; and according to tolerance this proportion is gradually increased to a 1 in 16 or slightly higher. The cereal gruel is retained and the condensed milk added to it. In some cases even this weak dilution is not well digested, and here partial peptonization may be resorted to for a time with satisfaction. As a further addition to the diet at this time I have long made use of an old German recipe which is usually taken with relish. It is made as follows: With one teaspoonful of the best butter mix three teaspoonfuls of wheat flour, and brown thoroughly in a pan or chafing dish; then add half a pint of hot water and bring to a boil, stirring until the mixture becomes smooth and thickened, flavor with salt, and after it has cooled somewhat add a coffeespoonful of a solid beef extract, and serve warm from a bottle or with a spoon. For older children a half or a whole egg beaten up may be added to this soup while boiling, and stirred briskly so as to distribute it throughout the soup in fine flaky particles. Most children will take this soup with relish for several weeks and even longer. Two of these soup feedings in appropriate quantity may be given each day.

An exception to the rule of prolonged starvation must sometimes be made in the case of artificially fed infants under two or three months of age. As a rule these babies when first presented for treatment are found to be weak or badly nourished from previous improper feeding, and therefore even a moderate starvation for more than twenty-four hours may cause serious loss of vitality. In several instances in dispensary practice dangerous depression has followed the withdrawal of food for only twenty-four hours. In such cases it becomes a matter of necessity to fortify the infant's strength by cardiac and systemic tonics (whisky, digitalis, nux vomica), and after the initial cleansing of the gastrointestinal canal to begin feeding with condensed milk, or preferably wet-nursing.

It must be remembered that after any but the mildest attack of enterocolitis the mucous membrane of the lower intestinal tract, and frequently that of the stomach and of the upper intestine as well, is in a state of subacute catarrh, and that its restoration to normal functional activity depends upon two conditions: (1) The constitutional peculiarities of the baby; and (2) the adaptability of the food.

In many cases serious anatomic alterations in the secretory and absorptive structures of the intestine have taken place. Rachitic infants and those of strumous or gouty tendencies are notably slow in recovering from the effects of an intestinal infection, while normal infants show much more rapid recuperative powers. The digestive power of the convalescent will therefore be conditioned both by his constitutional defects and by the extent of damage sustained by his digestive mucous membranes. For these reasons the treatment of convalescence often presents dietetic problems that far surpass in difficulty those of the acute stage of the disease.

An infant that has previously been thriving on a simple modification may be unable to resume this diet, or any adequate modification of this formula. This fact can only be ascertained by cautious experiment.

If the acute attack has been skilfully and promptly handled, there is good reason to expect that a cautious return may be made to the usual diet very soon after the evidences of intestinal infection have disappeared. After the movements have become natural in consistency, color, and frequency, the most satisfactory plan for returning to fresh milk diet is to prepare and pasteurize the milk mixture which the baby has previously taken, at first in a quarter or half the usual amount for a day's feeding, to save waste, and to begin by taking out not more than half an ounce from the bottle of condensed milk mixture or other temporary food and replacing it by an equal quantity of the fresh milk mixture. If this change is well borne, an ounce may be substituted, and so on, this gradual substitution being continued with varying rapidity until half the feeding consists of the fresh milk modification. After this the condensed milk or other food may be omitted altogether, and the feeding will now consist of a one-in-two dilution of the original mixture. From this point the proportion of milk mixture may be gradually increased, according to the digestion, until finally all the added diluent is omitted and the baby has returned to his usual bottle mixture.

This gradual substitution in many instances may be completed in a few days; in others it may take from several weeks to a month; but, in the class of difficult cases already referred to, it will be found that even this rate of progress is too rapid. If partial peptonization of the mixture does not offer a remedy at this stage, it will be necessary to completely change the plan of feeding.

In most of these cases the difficulty lies in the infant's inability to digest any but the lowest percentages of casein. The remedy here is to reduce the percentage of casein to a very low figure, while the balance of the necessary proteids is to be supplied by whey. Almost any infant can digest pure whey, or whey partly diluted with water. Whey made from whole milk and drained by gravity without squeezing contains approximately one per cent of fat. With this as a basis a rich cream may be cautiously added in increasing proportions until a fair percentage of fat is obtained; the richer the cream the lower the casein percentage that will be supplied with any desired fat percentage. For example, a mixture of one ounce of 32 per cent cream and three ounces of water may be peptonized at 105° F. for ten or fifteen minutes with one teaspoonful of peptogenic powder, and then raised quickly to 150° to check peptonization and to destroy further activity of the pancreatic ferment. A fluidrachm of this diluted cream may be added to sufficient whey, pure or diluted, to make up the quantity of the feeding, and enough sugar of milk to supply an appropriate percentage of sugar. If this mixture agrees well, the quantity of diluted cream may be gradually increased by drachm additions until the cream mixture constitutes one fourth and the whey three-fourths of the mixture (in which there is approximately 2.75 per cent fat, 0.79 per cent lactalbumin, and only 0.16 per cent casein). At this point of progress further addition of cream may be stopped and small quantities of whole milk added, equal quantities of whey being left out. In this manner the whey may be gradually replaced by milk until the mixture becomes after a time a simple cream, milk, and water mixture. In some cases, in which the fats are badly digested, more rapid progress in increasing the casein percentage may be made by using a weaker cream for the dilution, or even whole milk.

Finally, in a small proportion of these difficult cases it will be found that no fresh-milk food, other than whey, can be tolerated. Under these circumstances the condensed milk mixture may be made with whey as the diluent, and a weak cream added little by little after a short interval. In some few cases, indeed, a weak condensed milk with one of the proprietary foods containing dried milk may be the only form of food offering satisfactory nourishment at this stage of convalescence, and we may be obliged to wait patiently until the child shows himself again able to digest fresh milk, added at first in small quantities to the other mixture. A mixture in the proportion of two to four drachms of condensed milk with one or two drachms of malted milk to four ounces has frequently given me most gratifying results.

In conclusion I cannot too emphatically commend the excellent results to be obtained during the early stages of convalescence from the severer grades of infectious enterocolitis in young infants by a temporary resort to partial or complete wet-nursing. Provided the woman be in good health and her own infant thriving, no theoretical objections as

to differences in age need be considered, provided, of course, the colostrum period has been passed. Even if the woman cannot supply sufficient milk for the whole nourishment of the patient, one, two, or three nursings a day will be of inestimable aid; and even if she can spare only a little milk, say five to eight ounces a day, this may be used in a sort of human milk modification, the amount available being apportioned as equally as possible in the bottle of the artificial mixture. A few ounces of human milk, with the balance of the bottle made up of pasteurized whey, will in the most serious cases supply a form of nourishment for a limited period that may save a life. In these cases the human milk acts not only as a food but also as a powerful vital tonic and hematinic.

VALVULAR DISEASE OF THE HEART.

CRAWFORD in the London *Practitioner* for March, 1906, in writing on this subject says that treatment, more particularly medicinal treatment, is concerned in aortic regurgitation more with the relief of concomitant troubles than with direct assistance to the heart, such as can be afforded in mitral regurgitation.

In cases of sudden rupture of a valve, every means must be used to avoid stress. Absolute rest in bed, such measures as will insure restful sleep, and gentle laxatives, are imperative. It would be a grievous mistake to urge on the heart that is near being hopelessly embarrassed by digitalis, or by the persistent use of other stimulants. The heart must be left to work out its own salvation.

If discovered in the course of or after an acute infectious disease, the sheet-anchor in treatment again is rest, whatever other subsidiary measures may be employed; in the case of aortic regurgitation such rest is peculiarly necessary. After acute endocarditis the liability of the heart to dilatation is greatly increased, and the possibility of sudden diastolic arrest is no mere phantom.

Rest in bed, for at least six weeks, should be insisted on, followed by a like period of modified recumbency. If a full measure of hypertrophy is to be secured, a further period of not less than six months should be rigorously devoted to quiet convalescence; and if, on return to gentle work or gentle exercise, there is the least sign that the heart is unequal to the task, the period must be still further prolonged.

When compensation is established, attention to general hygiene is all that is needed. All the causes of cardiac strain, fatigue, and excitement must be avoided, and among these should be numbered the abuse of alcohol, tea and coffee, and tobacco. Diet should be moderate, and not unduly nitrogenous, but otherwise unrestricted in kind. A daily regular action of the bowels must be assured.

In arteriosclerotic cases some benefit may be derived from prolonged employment of the iodides; their depressing effects being averted by combination of nux vomica.

If signs of transitory irritability of the heart appear, alkaline bromides, valerianates, or Hoffmann's anodyne may be tried; transitory weakness may require strychnine, ether, or arsenic.

Digitalis is contraindicated only in the early stages of aortic insufficieny, because by slowing the heart and increasing peripheral resistance it augments reflux without other simultaneous benefit.

Prior to the final breakdown, the complicating troubles that may have to be met are very numerous. The distressing substernal ache of subacute aortitis may be relieved by a succession of fly-blisters, by cupping, or by the actual cautery over the aorta. Angina pectoris must be met by morphine or amyl nitrite, and recurrences warded off by rest, nitroglycerin, and iodides.

Attacks of urgent dyspnea are usually of toxic origin, either renal or alimentary, and are most difficult to relieve. Milk diet, free action of the bowels, inhalations of oxygen, and sometimes subcutaneous injection of morphine would seem to be indicated; injections of strychnine and ether are quite effectual. Acute pulmonary edema is likewise of renal origin, and is of such grave moment that immediate venesection should be resorted to.

Insomnia is apt to defy the whole range of hypnotics; the safest are perhaps chloralamide, trional, and paraldehyde, but the most effective is morphine, which must be given with a due regard to the state of the kidneys.

The terminal heart failure may be either arterial or venous in character. In the former case, the heart must be sustained against syncopal seizures by nourishment, and by such stimulants as strychnine, ammonia, and ether, perhaps with added belladonna or strophanthus.

When the troubles are those of venous back pressure, purgatives and digitalis are called for, as in mitral disease, withdrawing the digitalis as soon as relief is obtained.

The Therapeutic Gazette

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Leading Articles.

THE VALUE OF NUTRIENT ENEMATA.

Some time ago we published in the editorial columns of the THERAPEUTIC GAZETTE a note in which we called attention to an interesting research carried out by Edsall and Miller in which they endeavored to determine how much actual nutriment the body absorbed from the intestine of the patient after an injection. It will be recalled that the conclusions at which they arrived amounted to this, namely, that the most of the solids of such an injection remain practically unabsorbed, and it is only the saline constituents of the injection which are utilized. In other words, that a normal salt solution injected into the rectum would probably do as much good to the patient as the various nutrient enemata commonly used today. We have therefore read with considerable interest an original article dealing with this subject contributed to the *Scottish Medical and Surgical Journal* for March, 1906, by Dr. Boyd and Mr. Robertson, from the Research Laboratory of the Royal College of Physicians at Edinburgh. After detailing the technique of their experiments and the results obtained in each individual case which they studied, they come to conclusions which are, we think of considerable importance and value. In answer to the question, "given even a reduced standard of dietetic requirements, how far does rectal feeding meet these requirements?" they conclude that the most that can be absorbed amounts to 645 calories at a maximum and 240 calories at a minimum, or, in other words, that it is only possible to introduce into the body by this means about a quarter of the nourishment required to maintain nutrition. This, of course, holds true only under the most favorable circumstances, and in the presence of irritable bowels or diarrhea the method is of practically no value.

Another very important point which they emphasize is that when employed in the treatment of acute gastric diseases, nutrient enemata interfere with complete gastric rest by inducing gastric secretion, and yet do not sufficiently nourish the patient. It is interesting to note in this connection the experiments carried out by Umber upon a patient upon whom gastrotomy had been performed. After a rectal injection there was free gastric secretion with a total acidity of 30 and a free hydrochloric acidity equaling 20. Another point of considerable interest is that the injection should be of sufficient bulk to get well up into the colon, since it is absorbed much more rapidly if injected high up than if allowed to remain in the lower bowel. Indeed, there is reason to believe that occasionally it may slip, at least in part, past the ileocecal valve, and, having done this, of course there is much more opportunity for it to benefit the patient. Concluding their paper they make the following remarks:

Given a patient in poor condition, the enema cannot be relied on to produce any material improvement in nutrition. This seems an important point to emphasize. The surgeon frequently wishes to have a patient suffering from esophageal or pyloric obstruction brought into a condition of improved nutrition before operation. It cannot be too strongly emphasized that rectal feeding cannot be relied on to produce this desired result. It will at once be urged that patients may gain weight under rectal feeding. In considering this the absorption of water from the intestine must be remembered. After severe hemorrhage or persistent vomiting, as in pyloric obstruction or gastric ulcer, the tissues are suffering markedly from a defi-

ciency of water; on placing the patient on rectal feeding, water is absorbed and there may be a gain in weight. This was well seen in one case under their charge, in which rectal feeding was begun after a very severe hemorrhage from the stomach. Though the observation shows a marked negative nitrogen balance, and an absorption of 500 calories, there was a gain in weight after six days' rectal feeding.

If the physician desires to make use of rectal feeding, it seems that the best results will be got from the carbohydrates and fat. The absorption of proteid food from the bowel is so small as to make it of little value as a foodstuff.

Folin has recently enunciated a theory of proteid metabolism which would place proteid on a much lower scale as a food than is at present admitted. He regards proteids, in fact, as of secondary importance, inasmuch as their nitrogen is split off and eliminated, leaving the carbon and hydrogen containing part to be oxidized, and thus to yield energy as it is yielded by the carbohydrates and fats. Folin's views have not so far met with general acceptance (Paton), but even without accepting Folin's views we may evidently with advantage abandon much of the nitrogenous material which is at present used in rectal alimentation.

There remain, then, the carbohydrates and fats. In regard to carbohydrates, pure dextrose was used and gave most excellent results. In all cases it was well absorbed and produced no ill effects, such as bowel irritation or alimentary glycosuria. In another case the caloric value of the foodstuff absorbed was raised to 500 calories by increasing the quantity of sugar. During the whole period of observation the patient was comfortable, and did not suffer from hunger. The disadvantage of pure dextrose is that it is somewhat expensive.

The disadvantage of fat in rectal feeding seems to be the wide difference of absorptive power of different individuals, as is very well seen in their observations. When well absorbed it should prove most valuable, but the absorption cannot be foreseen in any given case. It is undoubtedly best given in the natural state, as in the yolk of egg. If prepared fat is used, it should be fine emulsion of a fat of low melting-point. Pure olive oil may be used, a small quantity being saponified and used to emulsify the whole.

For practical purposes a good nutrient enema consists of the yolks of two eggs, 30 grammes pure dextrose, .5 gramme common salt, pancreatized milk to make 300 cubic centimeters. The approximate caloric value of such an enema equals 300 calories. Given every six hours the total nourishment injected would equal 1200 calories. Absorption under favorable circumstances might equal 500 calories, but most probably would be much less.

In rectal feeding the method of administration and the size of the enema are both important points. Nutrient enemata should never be administered with a syringe. To place a syringe in the hands of a nurse is to court failure. Substances rapidly injected into the bowel will as promptly be returned. The enema should be very slowly siphoned in by means of a soft-rubber catheter and a small-sized filter funnel. Retention of the nutrient material is not then a matter of difficulty. If there be bowel irritability, a small dose of morphine may be added to the injection. The daily cleansing of the bowel with a saline injection is, of course, an absolute necessity.

The amount of the nutrient injection commonly used is from 4 to 6 ounces (112 to 168 Cc.). This is possibly too small an amount. If the enema be given slowly, 8 to 10 ounces (250 to 300 Cc.) can be retained, and the patient absorbs at least sufficient water and does not suffer from thirst, a prominent difficulty when small injections are used.

HAS SARSAPARILLA REAL THERAPEUTIC VALUE?

Years ago we discussed this subject in the editorial columns of the THERAPEUTIC GAZETTE, and at that time stated that many physicians firmly believe that iodide of potassium exercises a more advantageous influence as an alterative, both in syphilitic and other conditions, if it is combined with the compound syrup of sarsaparilla, a preparation which is used by many practitioners solely as a vehicle for the iodide, with little expectation that any material benefit will be gained by its use. At that time this view of the matter was criticized by one or more of our contemporaries, who ridiculed the idea that the sarsaparilla really possessed any usefulness.

It is interesting to note that during the last few months several communications concerning the value of sarsaparilla as an alterative have appeared in the English journals. Some weeks ago Sir Felix Semon ex-

pressed an opinion in the *British Medical Journal* that Zittmann's decoction of sarsaparilla, which contains sarsaparilla, fennel, anise, sassafras, mezereum, licorice, and guaiac, would produce most excellent results in the treatment of syphilitic conditions, particularly those in the tertiary stage, and he called attention to the fact that in many of the Continental resorts, where syphilitics congregate for treatment, this mixture is largely used.

In the *British Medical Journal* of April 7, 1906, Dr. Cullingworth, who is the consulting obstetric physician at St. Thomas's Hospital, London, makes a further contribution to this subject, and in doing so reminds us that not long since Prof. Clifford Allbutt strongly recommended sarsaparilla in the treatment of syphilitic cachexia. Cullingworth reports a number of cases met with in his experience which were treated by the syrup of sarsaparilla, which contained nothing but a decoction of sarsaparilla with some white sugar, and which was given in the dose of four fluidounces three times a day. He then presents records which show that in a short time patients suffering from syphilitic cachexia who received this mixture gained a number of pounds, varying from 2½ to 4¾ pounds per week; whereas other cases which received iodide of potash and iron failed to gain nearly so much.

THE DIAGNOSIS AND THERAPY OF DISEASE OF THE GALL-BLADDER AND ADJACENT TISSUES.

In no department of internal medicine have greater advances been made within the past ten years than in the diagnosis and treatment of diseases of the gall-bladder and adjacent tissues. At one time almost every patient who suffered from jaundice was supposed to be affected by a catarrh of the bile-ducts or to have a stone lodged in the common duct. The possibility, and indeed the probability, of a malignant growth being the cause of the obstruction in a considerable number of cases of jaundice occurring in patients after middle life was scarcely considered. Operative measures for the relief of gall-bladder infection have been, until comparatively recent years, as rare as were operations for appendicitis twenty years ago. The statistics which have been collected by careful observers, both medical and surgical, and by equally careful examiners at autopsy have proved very conclusively that a very large number of persons have gall-stones, yet suffer no inconvenience whatever from their presence. The same series of investigations also reveals the fact that many patients who are supposed to be suffering from gastralgia, enteralgia, intercostal neuralgia, and even from appendicitis, are in reality the victims of a cholecystitis, or of gall-stone colic, and in the great majority of these cases relief is not obtained until operative interference is resorted to.

One of the most important diagnostic facts, which has been elicited from a study of an immense number of cases of hepatic disease, is the so-called Courvoisier's law to the effect that in cases of chronic jaundice, with enlargement of the gall-bladder, the obstruction is in a very large proportion of cases due to a growth or to some cause other than stone; whereas in cases of chronic jaundice without enlargement of the gall-bladder a stone is the probable cause of the obstruction. This so-called law of Courvoisier has now been reënforced by such a large number of observers that there can be little doubt of its general applicability, and such notable surgeons as Mayo Robson and Moynihan in England, Terrier in France, and Fenger in this country may be named as those who place large confidence in its accuracy.

In this connection we have read with much interest a paper by Moynihan in which he points out that occasional exceptions to Courvoisier's law may exist, although, as we have already stated, he is a most ardent advocate of its accuracy in general, stating that it cannot be denied that the law holds valid in 90 per cent of the cases met with in practice. The exceptions to the law, however, in his experience, are as follows:

1. Where there is a stone, or a stricture, in the cystic duct causing hydrops or empyema, together with the acute impaction of a stone in the common duct.

2. Where there is a stone in the cystic duct pressing upon the common duct.

3. Where there is distention of the gall-bladder by an acute inflammatory process, with obstruction of the common duct by stone.

4. Where there is chronic induration of the head of the pancreas, with a stone in the common duct.

5. Where there is malignant disease of the common duct at any part of its course, or cancer of the head of the pancreas, and a chronic sclerosing cholecystitis.

THE TREATMENT OF ARTHRITIS.

Under the unfortunate name of "rheumatism" a large number of conditions, which are really very different in their nature, are often classed as one disease, and the diagnosis of "rheumatism" having been made, we fear that the physician is prone to pass to the standard treatment and administer salicylates in large doses. Increasing study of many cases of acute arthritis shows that a very considerable proportion of them are dependent upon an infection of the joint with the staphylococcus, the streptococcus, the pneumococcus, or the tubercle bacillus, as well as the gonococcus, and a number of other microörganisms less commonly met with. Against these various organisms the salicylates, of course, have no influence. They cannot be used with any hope of bettering the patient's condition. If small doses are employed they are manifestly without any effect, and if large doses are used they serve only to disorder the stomach and to throw an additional burden on the kidneys, and worse than all, by destroying the appetite, diminish the quantity of food which is ingested and so indirectly diminish vital resistance. An interesting editorial upon pneumococcic arthritis in children has appeared in the London *Lancet* of May 5, 1906. In this editorial attention is called to an exhaustive study by Herzog, of Heidelberg, in regard to this subject, and to other investigations which have been made by Dudgeon and Branson.

Pneumococcus arthritis very commonly is suppurative in character, and it may or may not complicate pulmonary disease. That is to say, many instances are on record in which the pneumococcus is responsible for the arthritis, yet in which no pneumonia has been present. The condition resembles that of most other types of suppurative arthritis, but the destructive changes are usually comparatively slight, and the bone is not commonly seriously affected. The capsule of the joint is somewhat swollen and thickened, and the synovial membrane infiltrated with mononuclear and polymorphonuclear cells. The appearance of the patient is that of one suffering from sepsis. The temperature fluctuates markedly, but there may be no marked disturbance of appetite or sleep. The importance of these cases has been impressed upon us by recent experience, in which a patient suffering from pneumococcus arthritis was treated as a case of ordinary rheumatism for many days until the pus had burrowed well up the thigh and down the leg, the patient dying from bacteremia.

The diagnosis of suppurative arthritis can be made not only from the appearance of the joint on inspection and by palpation, but by obtaining pus with the aspirating needle. This pus is usually non-offensive, creamy, greenish-yellow in color, and loaded with threads of fibrin, and if examined bacteriologically shows pneumococci in plenty. When the joint infection is due to staphylococcus or the streptococcus, the general symptoms are more severe and the local manifestations are also more aggravated. The skin is apt to be inflamed and the fever higher.

The prognosis in pneumococcus arthritis is better than in the other forms, but even in this type it is grave. Thus, out of 26 cases collected by Herzog, 15 recovered and 11 died.

The treatment, as pointed out by the *Lancet*, consists in the evacuation of the pus by opening the joint and draining it. The *Lancet* states, what we have already stated in the beginning of this editorial notice, that the salicylates are useless, as indeed are all other drugs which are directed to the condition of the joint. Good feeding, fresh air, sunshine, and those tonics which are designed to aid the patient in combating infection are required.

EXCISION OF THE GASSERIAN GANGLION FOR THE RELIEF OF FACIAL NEURALGIA.

The instantaneous relief of the suffering, so agonizing as to make life unendurable, incident upon a properly performed ganglion excision, and the comparatively low mortality of the operation, and particularly the willingness of patients thus afflicted to submit to any surgical procedure, have not only established this form of neurectomy in the confidence of the medical profession, but have doubtless at times induced ambitious surgeons to practice it for the relief of conditions attended by pain which could be benefited or cured by simpler and safer procedures.

Jordan Lloyd (*Birmingham Medical Review*, January and February, 1906) classifies facial neuralgias under four headings, namely: those due to abnormal blood conditions, as gout, anemia, syphiiis, etc.; those due to neuritis, as in herpes and tabes; those due to some local cause, such as carious teeth, eye defects, sinusitis, and the pressure of growths; and those which are truly epileptiform with no

ascertainable cause. Jordan Lloyd holds that the only form in which operation on the Gasserian ganglion is justified is that which he characterizes as epileptiform. The chief features of this particular form are given by Hutchinson as follows: It is almost invariably unilateral, commencing in the distribution of the second or third division of the fifth nerve, and tends to involve both to the same extent. The first is involved comparatively little, though radiation of pain in the ophthalmic distribution and that of the cervical nerves may occur. The attacks of pain are paroxysmal or spasmodic, tending to increase in severity, with lessened intervals of rest; they are, as a rule, accompanied by spasm of the neck muscles on the affected side and without ascertainable cause, although individual paroxysms may be brought on by talking, eating, or exposure of the skin to slight cold or light pressure. This affection attacks by preference male adults between the ages of thirty and fifty. It slowly and steadily increases in severity, spontaneous cure being almost unknown. It is not influenced by medical treatment, but may be temporarily alleviated by peripheral operations, and is cured only by partial or complete removal of the Gasserian ganglion. Lloyd states that he has twice seen trouble begin in the first division and remain there throughout; that spasm of the facial muscles has several times been absent in some cases following empyema of the antrum or trouble with a tooth; and that several of his patients were over fifty, that the disease was common in the female, and that it does at times spontaneously disappear. The intervals of complete relief between the paroxysms characterize this form of suffering from neuritis and point strongly against the theory of neuritis as the cause for the suffering.

Hutchinson lays down the following simple rules for choice of operation: If the neuralgia be limited to the infraorbital branches resection of the nerve by following back the branch in the infraorbital canal may be tried. If it concerns also the several branches of the inferior maxillary division (the inferior dental and the auriculotemporal), intracranial resection of the trunk and adjacent parts of the Gasserian ganglion is indicated. For all other cases—*i.e.*, those in which the neuralgia has already invaded two of the divisions of the fifth nerve—the ganglion should be resected.

Lloyd makes an omega incision with its base at the zygoma, beginning just behind the external angular process of the frontal bone, running upward and slightly forward for about two inches, then curved upward and backward for the same distance, and finally carried downward to the zygoma at a point just in front of the auricle. He forms an osteoplastic flap, cutting into the skull with a half-inch gouge until the opening is sufficiently large to admit a rongeur forceps, which divides the bone on the line of incision. The bone flap is broken outward. This fracture usually occurs well above the level of the zygoma, and necessitates the cutting away of more bone below the level of the fracture nearly as far as the ridge on the outer wing of the sphenoid. The dura is stripped from the base of the skull inward toward the middle line by the finger, the middle meningeal artery being followed until it disappears in the foramen spinosum. The dura mater is raised from the base by means of a broad, flat metal retractor. The foramen spinosum having been seen, the foramen ovale is readily seen anteriorly and adjacent to it. The middle meningeal artery is pulled by gentle, steady traction through its foramen for at least a quarter of an inch, secured by silk ligatures, tied less than one-eighth of an inch apart and divided. Thereafter a blunt hook is employed to trace the superior and inferior maxillary nerve trunks to their coalescence close to their foramina. The ganglion is removed by dividing the superior maxillary division close to the foramen rotundum, next the inferior division, well within the foramen ovale, and then by seizing the latter branch with long-bladed forceps and firmly pulling it forward and outward, and cutting about half an inch behind through the tissue which has been lifted over off the petrous bone, the greater part or all of the ganglion will come away. In a complete ganglion removal the side of the face, the temporal and frontal regions, the front of the upper part of the ear, the eyelids, and the side of the nose are without sensation; but curiously after a time this area of anesthesia becomes less in every direction, although it rarely entirely disappears. The masticatory muscles of the affected side are paralyzed.

Lloyd has operated in eleven cases without a death. All were cured without relapse. Six years is the longest period he has had a patient under observation.

Hutchinson's classification in cases of neuralgia is so simple and clear and his indications for choice of operation so rational that they carry conviction to the minds of all who

have had surgical experience with this class of cases. Moreover, Jordan's results obtained without mortality or crippling disability, and by a comparatively simple technique, are such as should be within the reach of any skilful surgeon.

Reports on Therapeutic Progress

THE EFFECT OF DIET ON CHRONIC HEART DISEASE AND DISEASE OF THE CIRCULATORY SYSTEM.

DUCKWORTH in writing on this topic in the *Practitioner* for April, 1906, tells us that the choice of food is hardly important so long as it is simply prepared and readily digestible. Predigested food is not so necessary as is commonly believed, but it may be needed in some cases. Soups and draughts of milk are, therefore, unwisely recommended in most instances, as tending to flatulence and discomfort in bed-ridden or sedentary conditions. Coffee, with an equal part of milk, is often a good cardiac stimulant, and may be better digested than tea as commonly made. A small cupful of freshly made China tea, with cream, may be given in the morning, and as much cocoa with milk later in the day. Small draughts of water, or unaerated, indifferent spa water, may be given between meals.

The question as to alcohol is here, as in all cases of disease, one requiring clinical skill for its employment, quite as much as in the prescription of any particular drug, and it must be administered, or withheld, without any bias on the part of the practitioner as to the necessity, or desirability, of alcoholic habits for the human race. There are certainly differences of opinion on the advisability of employing alcohol in chronic heart disease. The best clinical experience affords no definite rule for all cases, and it remains therefore, as stated, a matter for prescription *pro re nata*. The late Dr. Peacock, of St. Thomas's Hospital, whose experience in cardiac diseases was very large, and who was a most cautious and level-headed physician, declared that he knew of no form of heart disease in which some form of alcohol might not be used. Much depends upon the previous habits and the condition of the digestion of the patient. It may be affirmed that, in some cases, a little brandy, or whisky, or gin is of distinct benefit, best given with a meal. The amount seldom need exceed two or three ounces per diem, given in divided doses. It is found of more value in cases of aortic disease, in the later stages, where there is free regurgitation, and is usefully given at bedtime in such cases. The fact that the long and improper use of alcohol is well known to induce arterial sclerosis, and varied forms of heart disease, has not to be considered at the bedside of patients in whom this mischief has been accomplished, and we are in face of the malign and final outcome of these evil habits. Our business is to treat the patient and not his disease; and if alcohol can help at all, as we have good reason to believe it can, we are bound to make use of it. That is the clinical lesson, apart from any teachings or doctrines derived from other sources respecting the employment of alcohol in the abstract.

In the later stages of progressive heart failure, with tumidity of the liver and dropsy, we encounter great difficulties in respect of the dietary. The engorged portal system induces a condition of gastric catarrh, with aversion to almost all food. Medicinal means, which need not be discussed here, come in largely to our aid. Predigested foods may be employed at this stage, milk and barley water with citrate of soda, and kumiss may prove sufficient nutriment till some measure of appetite returns. Any efforts to force stronger food on the patient are futile and mischievous. Small quantities of iced champagne may prove useful. The question of withholding all salt from the food is worthy of consideration so soon as dropsical symptoms appear, and this plan may be tried.

The diet in cases of aneurism must next be considered. It is seldom that Tufnell's plan is now rigidly carried out, but a modification of it is the ordinary practice. The principle is to reduce the intake of all food, solid and liquid. The amount must naturally vary according to the peculiarity of the individual, care being taken not to be too rigid in any case in which there is, in addition to the aneurism, a condition of aortic reflux. Such cases are unfit for Tufnell's treatment, and a little wine should form part of the diet for most patients, that of Bordeaux being probably the best. Milk would appear to be an appropriate liquid to employ, as tending to aid in the desired coagulability of the blood. It is to be borne in mind that a greatly restricted diet is only compatible with absolute recumbency, and cannot be prescribed for patients who are not so confined. Experience, unfortunately, does not give us

much hope for the majority of cases of thoracic, or abdominal, aortic aneurisms even when thus treated, but it is certain that no better plan is known, and it is incumbent on us to enjoin the above-mentioned method, together with appropriate medication.

In cases of wide-spread arteritis, with high arterial tension, much benefit is derived from a diet deficient in proteid, animal food being thus reduced so far as possible. An increase of diluents is also important, especially between meals. Vegetable and carbohydrate food, with fish, must be the mainstay in these cases. Even here care has to be taken to insure an adequate nutrition of the patient, regarding his general well-being and mental state. In medicine we may never carry out any doctrinaire principle, however desirable it may be theoretically, if in practice it is found not to agree well with the patient.

In the conditions of the blood which lead to clotting, and so inducing thrombosis in veins or arteries, we may readily combat the hyperinosis by a vegetable and diluent dietary, and by avoiding the use of milk in any but small amounts. The richness of milk in lime salts renders abstention from it somewhat imperative. Hard waters are likewise to be avoided in these cases. Lemon juice is of particular value in hyperinotic states.

THE EFFECTS OF WATER TREATED WITH COPPER ON MAN.

KRAEMER in the *American Journal of Pharmacy* for March, 1906, tells us that while it has been conclusively shown that exceedingly minute quantities of copper are toxic to typhoid organisms, still the question is raised by some as to the toxic effects on man when copper or its salts are used in the purification of drinking-water. In commenting on a paper of the writer's on the "The Efficiency of Copper Foil in Destroying Typhoid and Colon Bacilli in Water," a reviewer writes as follows: "While recommending the use of copper foil for the purification of drinking-water, the writer adduces no proofs as to the freedom from toxic effects when water so purified is taken into the system over a considerab'e period of time." The writer's reason for not taking up the pharmacological phase of this question heretofore has been that his own experiments in the consumption of water treated with copper foil did not extend over a sufficient period of time to warrant him in making any statements in regard to the effects of water so treated. Then, too, he felt that the statements of pharmacologists and physiologists were conclusive as to the probable harmlessness to man of copper when used in the proportions necessary to purify water containing typhoid organisms. But since there seems to be some objection in certain communities to the drinking of water treated with copper, the writer has deemed it advisable to give his own experience in connection with this subject.

For nearly a year all of the drinking-water consumed in his home has been treated with copper. A strip of copper foil, or sheet copper, 9 inches square, is placed in a vessel containing from three to four quarts of water and allowed to remain from four to eight hours. The foil is first cleaned with powdered pumice, and retains its luster for weeks unless the water contains a considerable quantity of sediment, and provided the quantity of water is renewed immediately each time upon drawing off the sterilized or purified water. On account of the varying amount of sediment, it has been found desirable to filter the water before treating it with copper foil. Up to this time no ill effects have been noted from drinking the water so treated, and in fact the general health of his family may perhaps be said to be better than usual, in that they have not had to consult a physician during this time. Another interesting observation is that the water being more palatable than boiled water, they consume larger quantities, which possibly has some influence on the general bodily condition.

Believing that many vegetables may also be a source of infection, they take the precaution to wash the vegetables to be eaten raw with copper-treated water, or to place them, particularly in the case of lettuce and celery, in a vessel of water along with a strip of clean copper foil and allow them to remain from two to four hours with occasional agitation.

The use of copper vesels would be more convenient, but, of course, is more expensive. The writer has also thought that water pitchers and tumblers might be partly lined with copper foil.

From his own experience and observations, together with those of others, we may draw certain general conclusions, which have been summarized as follows:

It is pretty well established that the typhoid organism is disseminated not only through water, but also through air and food, and may retain its vitality for a considerable period of time.

Typhoid organisms in water are eliminated by filtration, boiling, and by certain biochemical methods. Of the latter, the use of copper, as proposed by Moore and Kellerman, is probably the most efficient and at the same time the most practicable.

While exceedingly minute quantities of copper in solution are toxic to certain unicellular organisms, as bacteria, it is safe to assume that the higher plants and animals, including man, are unaffected by solutions containing the same or even larger amounts of copper.

There being a number of factors which tend to eliminate the copper in solution, it is hardly likely that there would be any copper in solution by the time the water from a reservoir reached the consumer if the treatment of the reservoir were in competent hands.

Many plants contain relatively large quantities of copper, and when these are used as food some of the copper is taken up by the animal organism, but there are no records of any ill effects from copper so consumed.

A RAPID CURE FOR LUMBAGO.

In a letter to the *British Medical Journal* of March 3, 1906, FARQUHAR makes the following remarks: He quite agrees to the value of unguentum antimonii tartaratum in the treatment of lumbago, as Dr. Kenyon pointed out in the *British Medical Journal* of January 13, page 81, and has used it successfully for many years, having first got the hint in the sixties from an article in Braithwaite's Retrospect in connection with its often marvelous effects in relieving children's chest affections associated with persistent cough; but here there must be no rubbing in, only spread on lint and hung round the neck with a jaconet or oiled-silk covering to hinder the ointment from soaking into the clothing, and suspended when pustulation is established. A little fresh ointment should be spread on the lint daily until the above effect is produced.

In this connection it may also be mentioned that croton oil liniment used in a similar way will often succeed as well if not better, especially in cases of chronic sciatica and allied disorders in the hip region, and in such thorough rubbing in has much to do with the success of the remedy.

Of course it must be remembered that the affection will return after a time, but whoever has employed croton oil liniment after this fashion in arthritic cases carefully chosen has found a remedy that seldom fails to greatly relieve the stiffness and gnawing pains characteristic of these rheumatic disorders.

ANTITYPHOID INOCULATION.

The *Archiv f. Schiffs u. Tropen Hyg.* for December, 1905, contains a report on the results of protective inoculation against typhoid among German troops for Southwest Africa. The course of the disease was observed in 424 cases, of which 100 had been previously inoculated and 324 had not been inoculated. The method of inoculation was that of Pfeiffer-Kolles. The inoculation had been performed once in 30 of the patients, twice in 52, and three times in 18. The time which had elapsed between inoculation and the time at which the disease was contracted is not given, but could not in any case have been more than ten months. It is expressly stated that those cases which sickened soon after inoculation were the most severe, and although it cannot yet be decided how far the "negative phase" had to do with this fact, yet it would appear that this phase is not always overcome after a period of three weeks. The general results were as follows: Of the 324 not inoculated, 36 (11.1 per cent) died, and of the 100 inoculated, 4 (4 per cent); of these 4, 3 had been inoculated only once, and the fourth twice. Of those not inoculated, 25.3 per cent were severe cases, 21.3 per cent were average cases, and 42.3 per cent were slight; of those inoculated, 10 per cent were severe, 20 per cent average, 66 per cent slight. In the 10 severe cases among those who had been previously inoculated, the inoculation had been performed once in 6 cases, twice in three cases, and three times only in one case. There were complications in 113 cases (or 34.9 per cent) among those not inoculated, and in only 20 cases (or 20 per cent) among those previously inoculated. Moreover, the sanitary officers who had the opportunity of watching the course of the disease in the inoculated and uninoculated reported that among the patients who had been inoculated, as compared with the others, headache was seldom present, the sensorium was almost always unaffected, the effect on the heart was slight, the fever ran a shorter course and did not reach the same height, and sequelæ were rare. From such a report it follows that a positive refusal of inoculation cannot be justified, and that inoculation is especially to be recommended for soldiers

on service in countries in which sanitary measures against typhoid cannot be effectually carried out. At the same time it is important that those inoculated should not go to an infected neighborhood until at least three weeks has elapsed from the time of the second inoculation.—*British Medical Journal*, March 3, 1906.

ON THE DIET IN ACUTE ILLNESS.

PITT in the *London Practitioner* for April, 1906, writes on this topic. He considers the various ways in which nourishment may affect the symptoms of acute illness. It may act by neutralizing or counteracting the poison, either by supplying antibodies or by altering the alkalinity of the tissues. This is well shown in scurvy, anthrax, etc. Secondly, it may act as a stimulant on the heart and nervous system, including the pulse and the temperature, as alcohol does. It is now known that antitoxins are produced by the cells, and that their capacity to do so efficiently largely depends on the nutriment with which they are supplied. The elimination of poisons can be greatly accelerated by giving large quantities of liquid, so that the poisons are diluted while the cutaneous and renal organs are stimulated to activity.

One of the most striking phenomena in favor of administering abundant liquid is the retention of water and of sodium chloride which takes place in fever, and hence too much stress cannot be laid on the importance of an additional supply of liquid.

We no longer believe that starvation is an efficient way of lowering the temperature, but cold drinks and also getting the skin to act by increasing the perspiration are of value.

The value of tea, coffee, and alcohol in conditions of collapse and cardiac failure is generally allowed. The administration of sugar also is an extremely valuable means of reviving fatigued muscles.

A large quantity of liquid will increase the action of the kidneys, and help the excretion of poison, but care has also to be taken that the food is of such a nature that the waste products throw as small a strain as possible on the already overworked and damaged excretory organs.

In fever the mouth and lips become parched and the tongue dry, owing to the defective secretion of saliva, and as a consequence patients in a state of fever are unable to chew, nor do they move their tongues about sufficiently; hence bacteria flourish and the mouth becomes a center of infection. Stomatitis and parotitis may develop. Thirst, which is always a marked feature in fever, is due partly to the dry condition of the mouth, but also to the increased specific gravity of the blood, which results from the tissues of the body having attracted increased quantities of fluid out of the blood on account of their poisoned condition, and also on account of the sodium chloride retention. The diet of fever should therefore consist of liquids and not of solids. There is also marked loss of appetite with anorexia, which is due partly to the poisoning of the nervous system and partly to the imperfect digestion. It has been proved that in fever the movement of the stomach is greatly reduced so that food is retained in it longer, and in many cases also the secretion of digestive juice and hydrochloric acid is deficient. From these combined causes food ferments much more readily, hence peptones and albumoses should be assimilated more easily than meat. The administration of acid is indicated to supply the deficient secretion, and also to check bacterial fermentation.

It is, however, found by observation that in fever the absorption of food in the bowel is almost as efficient as in health, some 90 per cent of the fat and albumen being absorbed; but carbohydrates have been found in the feces, if given in excess, or when there is much diarrhea.

What is the quantity of food which is necessary for a patient in fever? In health 3000 calories are required for an active man; this may be supplied by 100 grammes of albumen, 100 of fat, and 400 of carbohydrates. In fever the excretion of nitrogen is greatly increased as the poison disintegrates the cell tissue, and interferes with the capacity of the cells for building up albumen. The CO_2 excretion is only increased by 20 per cent or less. For a patient in bed 2400 calories should theoretically be required; if there is pyrexia 2700 calories. With chronic pyrexia it has been found that 1500 calories may be sufficient, and practically the diet of a patient with acute illness will more often be found to have a value under instead of over 2000 calories.

The next question is: Will giving a patient an excess of nitrogen in his diet put a stop to the tissue loss? It has been shown by experiment that to some extent this may be answered in the affirmative, for a great increase in the amount of nitrogen in the diet will increase the amount of nitrogen excreted,

and the amount absorbed may be slightly increased by this means; but the general fact remains that it is impossible to prevent, by any diet, the waste of tissue in fever. Nor has it been found that it can be prevented by antipyretics, since even if the temperature becomes normal the effect of the poison on the tissue persists.

Alcohol is not required at the onset of acute illness, and at that time its use is more injurious than beneficial. Its use comes in when a crisis has to be tided over, in prolonged illnesses and during convalescence, and in improving the appetite and assisting in the assimilation of other food. There is no question that alcohol is a food, and one which is readily assimilated. It is a carbohydrate- and fat- but not an albumen-sparer. At the same time, if given in any considerable quantity, its toxic effect more than counterbalances these uses.

The conditions in acute illness under which alcohol should be administered are:

1. Failing circulation, indicated by a rapid, feeble, dicrotic, or irregular pulse, and a feeble first heart sound, whether this has come on suddenly or gradually.

2. In feeble, exhausted, especially alcoholic subjects, also in the aged, or the very young.

3. Inability to take food, from failure of digestion, with a dry tongue, especially if persistent.

4. Persistent pyemic conditions with high temperature.

5. A condition of low muttering delirium with profound exhaustion and insomnia.

6. During convalescence from an acute illness, while the appetite is still capricious. As a stimulant the alcohol should not be diluted too much, but given in a small amount of water or food; as an appetizer it should be well diluted. For hospital patients, diluted simple alcohol is superior to an inferior quality of spirits or wine. When patients can afford old, well-matured spirits, or wines rich in ethers, they are undoubtedly superior.

Alcohol in the effervescing form, as champagne, is often most valuable when the appetite has failed in prolonged illness, or during convalescence.

During convalescence from a prolonged illness of severe type, and especially in children, nothing is equal to a very fine old sherry.

The amount of alcohol, which must be given in divided doses, may be from 2 ounces of spirits upward; rarely is it necessary to give so much as 6 ounces in the twenty-four hours. Almost the only conditions in which this amount may be greatly exceeded with advantage are when there is pericarditis, pleurisy, pneumonia, and endocarditis from rheumatism, all combined at the same time, and in a few cases of very severe pyemia.

When alcohol is acting beneficially the tongue becomes moister, the pulse and respiration will quiet down and become more efficient, while the patient's mental condition and appearance will show marked improvement.

When too much is being administered the tongue becomes dry, the patient duller and heavier, and there is a smell of alcohol in his breath.

The amount that may produce this result depends on the patient's previous history and habits quite as much as on the amount taken, or on the nature of the disease.

SOME OBSERVATIONS ON THE TREATMENT OF PUERPERAL ECLAMPSIA.

DUNLOP in the *British Medical Journal* for April, 1906, states that although we cannot, from want of knowledge, employ a method of treatment calculated to influence the primary cause of eclampsia, our efforts may be so far rational that we can improve some of the morbid conditions present, which, although not the first step in the disease, tend to increase the general breakdown of the economy, resulting in epileptiform seizures. For example, the failure of the kidneys to secrete urine is not the original cause of eclampsia, but we know that if suppression of urine cannot be speedily relieved the patient will die, hence treatment directed to the promotion of diuresis is to some extent rational, and certainly it is scientific and will be helpful to recovery.

Now, in Glasgow Maternity Hospital the death-rate from eclampsia prior to 1898 was over 40 per cent; since then it has been less than 25 per cent. The class of patients and the general circumstances are the same, the obstetrical treatment is practically the same, yet a great fall in the death-rate has been established, and that over a large number of cases. The only great change in the treatment has been the introduction of saline infusion. Is it not, then, unhealthy skepticism to assume that a new method, introduced for the first time just prior to the improvement in the results and continued ever since, has not been largely instrumental in the improvement, or to say that "no treatment has been

proved to do good," and that "there is no treatment of eclampsia from which benefit can be certainly predicted?"

The intercellular infusion of saline solution was introduced into Glasgow Maternity Hospital by Dr. Jardine. The solution now used is one drachm each of sodium chloride and acetate of soda to a pint of water. This solution, sterilized at 100° F., is run into the areolar tissue beneath the breast, or after delivery into the lax abdominal wall. The object of the treatment primarily is "to get the kidneys to act." In Herman's article on eclampsia in Allbutt's System of Medicine (vol. vii) there is this statement: "The secretion of urine begins to be reëstablished in from six to twenty-four hours after the cessation of the fits . . . but it takes from two to four days for the secretion to become as abundant as in health."

If we compare this with the accompanying table of cases in which saline infusion was used, it will be seen that diuresis was always equal to, or even in excess of, the normal quantity within twenty-four hours of the cessation of fits.

Case.	Hours from cessation of fits	Amount of urine.
1	First 24 hours.	Two pints.
2	First 24 hours.	Two pints.
3	First 24 hours.	"Passing urine copiously."*
4	First 18 hours.	Three pints.
5	First 12 hours. Second 12 hours.	"Fair quantity." "Passing urine freely, probably about 2 pints."
6	First 12 hours. Second 12 hours.	Urine was lost. One pint.
7	First 24 hours.	"Nearly two pints."
8	First 24 hours.	Two and a half pints.

Analysis of the urines of eclamptics during convalescence shows a marked increase in the elimination of urea and uric acid, and probably other bodies are washed out which are even more harmful to the patient. Besides this eliminant effect saline infusion dilutes the toxins still in the blood-stream, and this may be observed in other diseases, as diabetic coma.

There is the further benefit to the patient of the stimulation which immediately follows this treatment in collapse. This effect is of course best seen when the collapse is due to loss of blood, but even in other cases it is often marked, for at such times the disposition of the quantity of blood in the body makes the same circumstances for the heart and brain as an external hemorrhage—for example, the collapse subsequent to a lengthy operation when there has been practically no bleeding.

Infusion of saline solution may, however, be overdone. If the patient be very edematous, if there be marked cyanosis with high arterial tension, and if there be much pulmonary congestion, it should be practiced only to a moderate extent (say one pint), unless the patient be bled at the same time. There is more than a slight risk of increasing the work of the heart by too large infusions, and the result will be, if not an immediate cardiac failure, an edema of the lungs, which will be no less certainly fatal.

Obstetrical Treatment.—It is generally admitted that peripheral irritation is a bad thing in eclampsia, whether caused by uterine contractions or obstetrical operations, hence we should adopt that line of treatment which will subject the patient to least irritation. If the labor be well advanced and the os sufficiently dilated, it cannot be thought that a forceps delivery under chloroform would be as great a source of irritation as a succession of labor pains in the the second stage, becoming more frequent and forceful, and probably lasting for an hour or more. The real difficulty in deciding on the proper obstetric treatment will only arise when the convulsions have occurred before or during early labor.

Herman has shown that after delivery, in about half the cases, the fits do not cease; and he points out that the disease runs its course in less than forty-eight hours, and that in most cases in which convulsions began in pregnancy or early labor a cessation of the fits would occur about the time of delivery, independently of whether the uterus were empty or not. In the writer's 8 cases it appeared that in 1 case delivery stopped the fits, in 2 cases mitigated the severity of the fits, and in 4 cases 2 died undelivered, 7 occurred in the puerperium; the effect of delivery on the remaining 33 is here shown:

No effect, or fits ceased three hours before delivery.....21
Fits ceased at delivery, though frequent up to delivery ... 4
Fits mitigated after delivery, though severe just before delivery..... 3
Fits more severe and frequent after than before delivery.. 5

These figures strongly support Herman's contention that delivery has no definite influence in cutting short the convulsions. But, besides the effect on the convulsions, we must

*When the exact amount is not stated the collection of the urine had been interfered with. The words in quotation marks are from the nurses' reports.

consider the effect of accouchement forcé on the patient. One cannot adopt a line of treatment to benefit the fits if it is shown to be harmful to the patient. Herman found that the chances were about two per cent better if delivery were hurried than if an expectant attitude were maintained. In the author's fifty cases he found the death-rate with accouchement forcé and with expectant obstetrical treatment exactly equal; but of the seven patients in the above table where accouchement forcé had a good effect on the convulsions, six died within a week from sepsis, cardiac failure, or edema of the lungs. This very strongly suggests that the good effect on the fits may have been secured at the expense of the patient, and it is sufficient to show that accouchement forcé, even when the patient is "deeply" under chloroform, is a very severe shock to her, and an extra risk.

In these fifty cases, of the forty-two which occurred before the birth of the child, only four were during the expulsive stage. It is important to note the difference in the two clinical types: (1) those occurring in pregnancy and early labor, and (2) those occurring during the second stage. In the first class the patient has probably been in the preëclamptic condition for some time, and the slight additional irritation of the first pains of labor is sufficient to determine reflexly convulsions which were already impending. In the second type the toxemia may not have been well marked, and the strong stimulus of the expulsive pains in the second stage is required to bring about the loss of balance of the cortical centers.

If such a case be immediately chloroformed and delivered by forceps she will probably have a few succeeding convulsions or none, but to apply the same treatment to a patient whose labor has not begun, or is in an early stage, is adding another risk, and is not only useless but harmful treatment.

ETHYL CHLORIDE IN HERPES ZOSTER.

VERGELY (*Rev. de Med. y Cirujica Prdcticas*, November, 1905) published the case of a young woman aged twenty-six, in the enjoyment of good health previously, who presented herself with well-marked herpes zoster, the pain and burning sensation being sufficiently troublesome to prevent her from working. Applications of cotton soaked in spirit and covered with oiled silk were attended with no effect, and successive eruptions continued to appear for the succeeding seven or eight days. Acting on the statement that Abadie had in several cases cured an attack of zona by lumbar puncture and the evacuation of some 20 cubic centimeters of the cerebrospinal fluid, it was thought that the production of a shock to the spinal cord by means of somewhat less heroic measures might be beneficial; and with this idea ethyl chloride was applied over an area corresponding to the first eight dorsals. The result was most gratifying. The pain and anesthesia instantly disappeared, and the eruptive process was evidently checked, for the already-formed vesicles began to form crusts on the following day, and the patches which had last appeared aborted, the little vesicles drying up and disappearing as red points without arriving at the vesicular stage. On the tenth day after the application all the crusts had fallen off, and the eruption was gone. Vergely opines that it is not sufficient to make the skin very cold, but that a true congelation of the surface should be produced.—*British Médical Journal*, March 3, 1906.

THE ACTION OF IODINE ON CIRCULATION.

POUCHET (*Les Nouveaux Remèdes*, January, 1906) states that in therapeutic doses iodine and the iodides produce no modification in the blood-pressure of healthy persons. In different diseased conditions, however, they cause a lowering of arterial tension and important alterations in cardiac rhythm. By their action upon the lymphatic system and the blood itself they produce a favorable effect upon the peripheral circulation.

In all other cases where they act as hypotensors it is by reason of a beginning toxic effect exerted directly upon the heart itself as well as upon the vasomotor centers.

Thus in therapeutic doses iodine is a hypertensor, while in toxic doses it is a hypotensor.

The action is very different, according as pure iodine, one of the alkaline iodides, or one of the organic compounds is employed. In the potassium salt especially there is a double action, one due to the iodine and one to the potassium. If large doses of this drug be given the depressing effect of the potassium will be superimposed upon that of the iodine.

In repeated medicinal doses there is a lowering of tension, arterial, venous, and capillary, with slight acceleration and no perceptible loss of energy.

The action of certain organic compounds is less marked, though more lasting, and hypotension is more readily produced.

Iodothyrine, the juice of the fresh thyroid gland, and the iodo-albumins have an exactly opposite effect upon the heart and extra-cardiac nervous apparatus than that of the alkaline iodides and iodine, being hypotensors in medicinal doses.

The iodides owe their effect upon the heart to the changes which they produce in the lymphatic system and blood, and for this reason are not to be considered as cardiac drugs. The iodo-albumins and thyroid preparations are not of much practical use because of their unstableness. The effect upon nutrition and the nervous system is bad, and much harm has resulted from their indiscriminate use.

IODATE OF SODIUM IN THE TREATMENT OF CEREBROSPINAL MENINGITIS.

EDLEFSEN (*Berliner klinische Wochenschrift*, Jan. 29, 1906) recommends the hypodermic use of this drug as a substitute for other methods of administering the iodine preparations in spinal meningitis, inasmuch as it can be given without disturbing the stomach. He thinks that it should be used in all cases affecting adults, and recommends that it be combined with eucaine after the method of Ruhemann. He is also of the opinion that its use should be begun as soon as a positive diagnosis has been made.

In many of the cases which he has treated with this drug potassium bromide was also given internally, and attention is called to its value in relieving the vomiting so common in epidemic cerebrospinal meningitis.

The sodium iodate has also been productive of good results in glandular swelling, and in fact may be employed whenever it is desired to secure an energetic action of iodine.

PERNICIOUS VOMITING OF PREGNANCY.

In an interesting article on this subject contributed to the *Johns Hopkins Hospital Bulletin* for March, 1906, WILLIAMS reaches the following conclusions and plan as to treatment:

1. The pernicious vomiting of pregnancy is not due to a single etiological factor, and occurs as one of three varieties, reflex, neurotic, and toxemic.

2. The reflex type is dependent upon the existence of abnormalities of the generative tract or ovum, and may be cured by their correction or removal.

3. The neurotic type is dependent upon the existence of a neurosis without demonstrable lesions, and is more or less allied to hysteria. It is the most frequent variety of serious vomiting, and can be cured by suggestion or a modified rest cure.

4. The toxemic type is associated with characteristic changes in metabolism, and in fatal cases, at least, with lesions in the liver analogous to those observed in acute yellow atrophy. It may occur in an acute or chronic form, the former causing death in ten days or less, while the latter may persist for weeks or even months.

5. In reflex and neurotic vomiting there are no manifest changes in the urine, while the toxemic variety is characterized by a marked decrease in the amount of nitrogen excreted as urea and a characteristic increase in the amount excreted as ammonia; the so-called ammonia coefficient rising from 3 to 5 per cent to as high as 46 per cent in one of the cases reported by the author.

6. The toxemic type is diagnosticated by the examination of the urine, the reflex by careful bimanual examination of the genitalia, and the neurotic after the exclusion of the other two varieties.

7. The prognosis is excellent in reflex and neurotic vomiting, provided appropriate treatment is instituted, so that the termination of pregnancy is rarely indicated. In toxemic vomiting, on the other hand, a fatal issue can be averted only by the prompt induction of abortion, and even then the prognosis is dubious.

The treatment to be pursued in a given case of vomiting of pregnancy depends entirely upon the variety with which one has to deal. It is assumed that medicinal treatment has been tried without avail before the medical adviser comes to regard the case as at all serious.

If any abnormality of the generative tract or ovum be found it should be remedied as far as possible; the retrodisplaced uterus should be replaced and held in position by a properly fitting pessary; ovarian tumors should be removed and inflammatory masses treated by appropriate antiphlogistic measures. On the other hand, if hydramnios or hydatidiform mole be diagnosticated the pregnancy should be promptly terminated.

If the toxemic variety of vomiting be diagnosticated, abortion should be induced as

soon as its nature is fully recognized, as it would seem to offer the only chance of saving the patient, since the lesions associated with it are apparently incompatible with life if far advanced, and especially as there is no reason to suppose that they can be materially influenced by medicinal or dietetic treatment. After the uterus has been emptied, the patient should be given abundant saline injections by the rectum, or subcutaneously if the former are not well borne. The stomach should be washed out occasionally with a weak solution of sodium bicarbonate if the vomiting persists. No attempt should be made to feed the patient by mouth, and even ice should be withheld until the vomiting ceases, all reliance being placed upon the salt infusion and enemata and the employment of rectal feeding.

On the other hand, if the neurotic variety of vomiting is diagnosticated, the treatment will depend to a considerable extent upon the impressionability of the patient In certain exceptional cases a vigorous moral lecture may prove all that is necessary. In other instances the patient should be assured that her condition will not terminate fatally nor require the induction of abortion, and that it will probably yield to intelligent treatment. She should then be given some harmless remedy and receive the most minute directions as to the character of her food, and the manner in which it should be taken. If such mild methods do not suffice, the patient should be put to bed in charge of a sensible nurse and the family and friends excluded from the room; all feeding by the mouth should be stopped, and its place taken by the administration of saline and nutritive enemata by the rectum. Occasionally it may be necessary to add small quantities of laudanum to the enemata, or to give an occasional hypodermic of morphine.

If, however, such treatment is not followed by improvement within three or four days, the patient should be threatened with removal to a hospital, and if the threat does not prove effectual it should be carried out actually and the patient placed in a private room in a well regulated hospital, where a rigorous rest cure can be instituted upon the most approved plan. In the experience of the author such drastic measures are rarely necessary, as the modified rest cure, as outlined above, will usually be followed by the cessation of vomiting within a few days, and the vast majority of patients will be on the high road to recovery within a week.

Of course it is possible that occasional cases may not be amenable to such treatment, and under such circumstances it may become necessary to resort to the induction of abortion in order to prevent death from starvation; though the author believes that with an accurate diagnosis and sufficient assurance on the part of the physician, such a resort will become less and less frequently necessary, and that the operation will be reserved almost entirely for the cases of toxemic vomiting.

EXOPHTHALMIC GOITRE.

Dock in *American Medicine* of February 24, 1906, says that the variety of measures used in the treatment of Graves's disease, and the enthusiasm with which some are lauded that fail entirely in the hands of many physicians, show that no satisfactory remedy is as yet available.

The author speaks of certain methods not so much to encourage their use as to add to the general knowledge of the subject, and then takes up the consideration of the measures he has found most useful.

Thyroid Preparations.—The use of thyroid in exophthalmic goitre is not, *a priori*, as irrational as many think. If the harm is done by a morbid secretion, it might be that supplying the organism with a normal substance would assist in carrying the forces along until the function became normal. In order to test this theory, as well as to learn more of the effects of the gland substance, he used thyroid powder and tablets in nine cases of Graves's disease in a series of cases, giving 0.32 gramme (5 grains) three times daily. In one there was a distinct effect on the thyroid, as there often is on the simple goitres, the neck measure going down from 15¼ to 13½ inches in three weeks. In two the neck did not become smaller. In the others there was such a slight diminution in size and consistency as we often see without any treatment. The pulse became less frequent in three cases, in three weeks, seven days, and ten days respectively, the rate changing from 140 to 160 to 110 in the first, 124 to 110 in the second, 124 to 96 in the third. In the first the neck grew much smaller, but the tremor and nervousness were worse, legs weaker, sleep no better than before, and the drug was discontinued. In another case the rate fell from 130 to 120 in eight days, but

perspiration became worse; urticaria broke out, the eyes were painful, and the drug was stopped. In two cases there was a rise of pulse-rate, 112 to 132 and 110 to 130, without other symptoms. Diarrhea, nervousness, and pain in the neck came on in two other cases. In the others the tablets gave rise to no unpleasant symptoms; they gave a subjective sensation of benefit. From the absence of visible action in many cases in which thyroid preparations have been given, the author has been led to believe the material is often inert. All he used was fresh from the makers.

In the early days of iodothyrin he used that in two cases of exophthalmic goitre, also without effect. In the treatment of ordinary goitre with thyroid he has several times seen such symptoms as rapid pulse, headache, nausea, and malaise, never becoming serious.

Thyroidectin is, *a priori*, a more promising substance than thyroid. In the latter we have to assume a series of possibilities, the most important of which are not likely to exist. In the case of thyroidectin we are supposed to have substances that are directly antagonistic to the thyroid secretions, to imitate, as it were, and to prolong the intermediate stage that has been seen when a patient with Graves's disease develops myxedema. Unfortunately we do not yet know whether the theory is correct, nor whether it is in any case possible to strike a balance between the antagonistic principles.

The author has treated seven patients with this substance; three of the cases were very severe. He adds that in all of them rest in bed, the ice-bag to the heart, and other remedies, such as sodium phosphate or strychnine, have been used more or less regularly. All the patients improved, but he could not see that the process was more rapid or otherwise different from those treated without thyroidectin, but the same in other respects.

The substance evidently has some action. Patients become accustomed to it, so that without a very marked beneficial action while taking it they feel worse when they stop. One patient has taken 18 bottles, or 900 tablets, in nearly a year, and has noticed the difference whenever she had to wait for a new bottle. Another patient had chills, fever to 101.6° F., headache, small, weak pulse of 120, while [taking 1 gramme (15 grains) three times a day, ascending at the rate of 0.32 gramme] (5 grains) three times daily. While taking 2.6 grammes (40 grains) three times daily she had a similar attack. She had a history of such attacks without known cause three years before. The whole condition suggested an intoxication that might come from any non-specific material, and not at all an excess of material antagonistic to thyroid; nor did it suggest stimulation of thyroid production in excess. While taking the ascending doses of thyroidectin she gained weight as she had on 0.32-gramme (5 grains) doses, gaining 20 pounds in seven weeks, standing still in the week the remedy was discontinued, and beginning again with it. The general condition, nervousness, thyroid, and eyes all improved, but the pulse remained about the same, 110 to 120, though it was less irritable than before.

This case is a fairly good example of two others in which the remedy was given for a long time in increasing doses, to 3.33 grammes (50 grains) three times daily. In another the pulse was made permanently less (114) than before (150), but not so low as it had been (94) under the use of the ice-bag. In another case the pulse was higher after five weeks' treatment with 0.32 gramme (5 grains) three times daily. In two other cases the substance was not taken long enough to furnish conclusions of value.

The treatment that the author has found most useful is based upon the chief symptoms and the fact that many patients improve spontaneously. Although it seems to him the best we have at present, he admits it is unsatisfactory in the length of time it requires, and the adoption of a rather careful mode of life. He therefore looks upon experiments at more specific treatment as most rational. They do not need to interfere with the most essential parts of the other treatment.

The elements of the treatment he has found most useful are rest, diet, care of the stomach, intestines, and skin, with special attention to symptoms such as those of the heart, nervous system, and other organs when necessary. Some details of this form of treatment need further elaboration.

Not only the degree of severity of the case but each individual case requires special consideration, and the personality and psychic peculiarities must be as carefully investigated as the size and function of the heart or the condition of the stomach or blood.

In mild cases little more than rational living is necessary. In severe cases rigid rest treatment with active treatment for all important symptoms is essential. The great number of moderately severe cases require a

treatment touching the other two at certain points, and it is convenient to speak more fully of these.

Rest is indicated by the weakness, the great tendency to fatigue on all sorts of exertion, and the anatomic findings of Askanazy. Rest is more likely to be taken when it does not demand too much of the patient's necessary or imaginary duties. Instead of ordinary rest in bed in daytime for such patients, the author recommends long hours of bedtime at night, and lying down instead of sitting or standing at all times when not actually engaged in work requiring another position. Reading, for example, can be done in the reclining position. (One need hardly add that the kind of reading done by a patient with Graves's disease is often necessary to control.) In the case of school-teachers, housewives, and many others a very definite rest can be obtained in this way, and the patients would be quite unable to follow the advice so often given, to go to bed at certain hours every day.

The importance of mental rest is obvious, but the same principle obtains here. Many patients throw off a good many unnecessary causes of mental fatigue, just as they can lie on a couch instead of sitting, but cannot avoid all mental exertion, nor is it likely they would be wholly benefited if they could.

Exercise should be taken by these patients always short of the point of fatigue, and in the open air. The writer has seen many patients injured by the often mysterious but sometimes severe methods of the physical culturist. If patients have no time or are too weak to exercise in the open air, it is of great benefit to have them lying down out-of-doors, protected from the weather, and as long as possible.

It is hardly necessary to say that the hygiene of the bedroom must be looked after.

Bathing must be adapted to the patient's condition and facilities.

The diet should be varied, as full as possible, and all symptoms on the part of the stomach or bowels be promptly corrected. Overfeeding is often but not always necessary. The scales should be used regularly as a guide. All injurious articles of food or drink should be avoided. Certain foods can sometimes be found to have a bad effect not only upon the gastrointestinal tract, but also the heart.

Tachycardia should always be treated by rest first, and even if severe no drugs should be given until the patient is at rest. As a cardiac sedative and tonic the ice-bag should first be tried. Many patients soon recover from palpitation and rapid pulse under this treatment. Digitalis, so often used, is not theoretically indicated for the tachycardia of Graves's disease, but is valuable in cases of dilatation or asystole as a direct stimulant. Strophanthus seems more useful for palpitation and tachycardia, and in the opinion of the author can be combined with strychnine with great advantage in such cases.

For nervousness and sleeplessness, rest, fresh air, a cool bedroom, and comfortable bed are more important than drugs. A warm bath before retiring, a hot drink, and a hot-water bag to the feet should always be tried before resorting to drugs. If these fail the writer finds it better to give a large dose of bromide occasionally rather than small repeated doses. Hypnotics, too, should be used only in emergencies and never for long periods. Opiates should never be given in a mild or moderately severe case.

For the stomach, dietetic treatment often suffices, even when there is low hydrochloric acid. If necessary, special treatment should be carried out. For the prevention of diarrhea, proper diet and regular action of the intestines are essential. Constipation should be treated according to its degree. Sodium phosphate is a useful drug in many cases, but it is doubtful if it has any advantage over cascara. The writer has given the former for long periods in doses of 1.3 to 4 grammes three times a day without seeing any special effect.

In gastric or intestinal crises early evacuations should be practiced by the stomach-tube, cathartics, and enemas. After that bismuth, antiseptics, or sedatives may be necessary, though they are not always.

SPINAL ANESTHESIA WITH STOVAINE.

GERAUD, of Paris, in the *Journal de Médecine*, Jan. 14, 1906, reports his experience with this method in seventeen cases.

Stovaine, or chlorhydrate of dimethylaminobenzoylpentanol, is a synthetic substance much less toxic than cocaine, is not a vasomotor constrictor, is readily sterilized by heat, and is not precipitated by sodium chloride. It possesses the great advantage of being incorporable in a solution having the same freezing-point as the spinal fluid.

The solution usually employed contains ten per cent of stovaine and ten per cent of sodium chloride, and is put up in sealed

glass tubes holding half a cubic centimeter, which is the ordinary dose.

Shortly after the injection of the fluid into the spinal canal, a tingling followed by numbness is experienced in the lower extremities. Anesthesia is obtained in three or four minutes. Tactile sensibility, however, is always preserved.

Anesthesia begins in the extremities and the anogenital region, and extends upwards to the level of the umbilicus. Sometimes it goes as high as the breasts, but more frequently does not extend beyond the groins.

Among the inconvenient features of the method are acceleration of the pulse; tingling of the limbs; nausea and vomiting; sweating and paleness; slight headache; elevation of temperature on the days following the use of the drug; insufficient anesthesia; impossibility of operating above the umbilicus; impossibility of operating upon very nervous patients.

The accidents thus far observed are severe pain of considerable duration at the point of puncture; relaxation of the sphincter ani; syncope and coma; retention of urine; tetanoid contractions of the lower extremities.

Two deaths have occurred, although neither of them were in Geraud's series of cases.

Geraud considers the method useful in certain cases and will continue to employ it.

The rapidity of its action, the absence of pulmonary complications, and the usual mild effect are in its favor. The fact that two deaths have occurred, however, shows that it is not without danger.

THE HYDROTHERAPY OF NEURALGIA, PERIPHERAL PARALYSIS, NEURITIS, AND POLYNEURITIS.

SADGER in the *Therapeutische Monatshefte*, January, 1906, discusses the treatment of these affections by hydrotherapeutic measures.

Acute neuralgia may often be relieved by sweating, followed by cold applications. Thus, for example, in facial neuralgia, a steam bath of from ten to twenty-five minutes' duration, or wet or dry packs continued for an hour or two until sweating ensues, followed by a cold shower-bath (two minutes), a cold plunge, a cold rub, or a cool half-bath, will frequently afford relief. So, too, post-infectious facial neuralgia often yields to a simple cold shower-bath or to alternating hot and cold showers.

In sciatica steam baths or protracted hot packs followed by cooling procedures give good results. The Scotch douche applied to the painful area is also useful.

The following formula has been used with advantage: Cold shower five minutes; Scotch douche along the course of the nerve five times in succession; cold shower for fifteen seconds. Stimulating applications to the painful area are also applied over night.

The treatment of peripheral paralyses is the same, except that the Scotch douche is not to be employed.

In polyneuritis stimulating applications or long, narrow compresses are to be used in the early stages. After a few days half-baths of higher temperature or steam baths of thirty minutes' duration may be used. They are then followed by the stimulating applications, which are applied noon and evening.

Still later in the disease the half pack may be applied in the afternoon, and finally the full pack. It is followed by a cold rub or douche to the lower extremities.

THE EFFECTS OF OSMIC ACID INJECTIONS.

EASTMAN reports his experience with this drug in the cure of severe neuralgia in the *Journal of the American Medical Association* of February 24, 1906. He concludes that:

1. The injection of 10 drops of osmic acid in two-per-cent solution into sensory nerve trunks is safe. The likelihood of irritation of the kidneys, however, should not be forgotten in cases exhibiting kidney lesions. It is not probable that the death from cerebral hemorrhage three months after injection of the acid was due in any sense to the injection.

2. Injections into the inferior dental or other nerves should be made through the mouth, since infection of the wound and necrosis may result, with consequent failure in the action of the acid.

3. Immediate relief should not always be expected, notwithstanding the fact that some cases have been relieved. No one of the author's cases, even those in which the acid was accurately injected into the nerve trunks and into the perineural fat, was promptly relieved, relief coming in from one to two weeks. The observations on this point of Wright, who had a large experience with osmic acid injections, correspond to those of the author.

4. There is very little doubt that the stretching of the nerve trunk, necessarily in-

cident to the injection, is productive of good, supplementing, as it must, the action of the acid. There is, therefore, no good reason why the stretching should be avoided intentionally, except perhaps for experimentation.

5. In the case of small nerves it will be found exceedingly difficult to inject directly into the nerve trunk—that is, the needle eye will pass to the distal side of the threadlike nerve, or perhaps not enter the nerve substance at all; or, notwithstanding the utmost care, the fiber may be so teased apart by the needle point that the fluid will simply be spilt about the nerve. In such a case, in order to bring the acid in contact with all the fibers, it is wise to clip the nerve so that the end may be bathed in the fluid.

6. The effect of manipulation of the nerve, as by stretching, has not as yet been elimiated as a possible aid to the chemical action of the osmic acid; therefore a general anesthetic should be administered, so that neurectasy or section of the nerve may be done if desired.

7. The author's experiments have shown no changes in the nerve tissues as the result of injections of osmic acid or other than the disintegration of fat and oil globules in the perineural space and in the white matter of Schwann, such white matter of Schwann being simply fatty matter in a fluid state insulating and protecting the essential part of the nerve. The degenerations appearing in the nerve itself are only such as may be fairly attributed to nutritional changes and exposure, the indirect result of the selective action of osmic acid of destroying fat. There is no reason why this fat should not be restored and the nerve again become capable of transmitting sensation—that is, theoretically, the neuralgia may return after injections of osmic acid.

8. Osmic acid injections are uncertain in effect as to the cure or relief of neuralgia.

9. A large percentage of cases of neuralgia will be relieved for months by osmic acid injections.

10. The injection of osmic acid for the relief of tic-douloureux is justifiable, even if it should become necessary to repeat the injections at intervals for a few months, particularly in view of the unfavorable results of the so-called radical operations.

11. The local irritation produced by the acid and the remote toxic and irritant effects are not serious in their consequences, and have no meaning as to the effect of the osmic acid in relieving neuralgia.

12. The solution of osmic acid should be made fresh for each operation, as deterioration is rapid.

13. Pain persisting several days in a small circumscribed area means that the filaments supplying this area have not been acted on by the acid. The acid usually finally destroys such filaments. It may become necessary, however, to reopen a wound for the purpose of injecting such filaments.

14. Mere subcutaneous injections are of little or no value.

GENERAL CONSIDERATIONS ON THE THERAPEUTIC USES OF DIET.

In the *Practitioner* for April, 1906, HUTCHISON states, in regard to the therapeutic use which may be made of qualitative alterations in the diet, that it is well to have clearly before our minds the directions in which such treatment is likely to be of service. Change of diet is not a panacea, and in many cases what our patient eats need not trouble us at all. Indeed, it may be safely asserted that no change should ever be made in a patient's customary diet, unless we have definite grounds for doing so. Were this rule always observed, we should as a profession escape the charges of inconsistency and arbitrariness, which the public is apt to bring against us, and, it must be admitted, with some justice, when we come to the dietetic part of our plan of treatment. In the first place, then, the diet may require modification, either chemically or, what is even of greater importance, mechanically, in order to meet some disability on the part of the organs concerned with the digestion and absorption of the food. We do well, therefore, to prescribe a careful regimen in cases of dyspepsia, or intestinal disease, remembering, however, that but few cases of dyspepsia are really cured by diet, and that in most instances all that we can do is to adjust the burden to the powers of the weakened organ, whilst trusting to other means to bring back to the patient the digestive powers of a healthy man.

From the organs of absorption the food reaches the blood, and may be made effective in determining chemical alterations in the composition of that all-important fluid. We may insure, for instance, an adequate supply of proteid and organically combined iron in cases of anemia, and of vegetable salts of potash in scurvy, or we may avoid diluting the blood in dropsy. Passing from

the blood, the food reaches the tissues and places its impress on the whole character of the patient's metabolism. It is here that the quantitative changes in diet, referred to above, play their chief part, but we may also seek to modify the direction of metabolism, or to remedy the impairment of it, by suitable qualitative alterations in the composition of the food too. Diabetes, acute fevers, and gout are examples of such impairment of general metabolism, which we meet, in the first case, by diminishing or abolishing carbohydrate ingestion; in the second case, by increasing the amounts of carbohydrates and lessening the intake of proteid and fat; and in the third by restricting the consumption of foods which yield an abundance of those chemical ingredients (purins) which exaggerate the production of uric acid. All these are well-known illustrations, but there can be little doubt that as our knowledge of pathological chemistry increases we shall gradually learn to control other vices of metabolism, which express themselves in different forms of disease, with just as great certainty as we now do these. Finally, having passed through the metabolic mill, what is left of the food reaches the organs of excretion, the amount of work thrown upon which can be largely controlled by altering the composition of the diet. The application of this principle in the treatment of renal disease, or of urinary gravel, is a common plan of therapeutics. In all these ways, then, we have it in our power to alleviate or cure disease by varying the composition of the diet.

In conclusion, Hutchison thinks that it may not be out of place to lay down some general rules which should always be borne in mind when drawing up any plan of dietetic treatment:

1. When prescribing a diet for a case of local disease, one must take care not to sacrifice the whole to the part. The organs are "members one of another," and one must not interfere with a patient's general nutrition in the interests of any one of them. This rule finds its chief application in cases of dyspepsia. It is often better — even in the interest of his stomach — for a dyspeptic to endure a certain amount of discomfort after food rather than to lower his general vitality by too great abstemiousness.

2. No article of food should be forbidden unless one has a good reason for doing so. Observance of this caution will insure the avoidance of arbitrariness in dietetic prescriptions, and greater consistency in the practice of different physicians.

3. In acute diseases one should recommend; in chronic diseases forbid.

4. Before recommending any article, find out whether the patient likes it, and whether it agrees with him.

5. If an article disagrees, it is generally better to reduce its amount in the diet than to cut it off altogether.

6. General and proposed changes of diet should be made gradually.

7. Always bear in mind the following aphorisms of three great physicians:

"Such food as is most grateful, though not so wholesome, is to be preferred to that which is better, though distasteful" (Hippocrates).

"More importance is to be attached to the desires and feelings of the patient than to doubtful and fallacious rules of medical art" (Sydenham).

"Physicians appear to be too strict and particular in their rules of diet and regimen; too anxious attention to those rules hath often hurt those who were well, and added unnecessarily to the distress of the sick" (Heberden).

CONTAMINATED FOOD.

The *Journal of the American Medical Association* of February 24, 1906, reminds us that the work of securing pure food involves more than making laws against adulteration. Food which is not adulterated may yet be contaminated in its manufacture and preparation for market. In a recent article Mary Sherman, of the National Consumers' League, portrays some conditions that almost make one afraid to eat. The article is illustrated and shows in what vile and disgusting quarters macaroni, ice cream, candy, and other products are prepared. For the most part these supplies are for consumption among the poorer classes, and the personal danger is not very apparent to the average person outside of the slums; but this cannot be said of a New York nut factory, in which nuts are shelled for candy factories, bakeries, and retail groceries. The firm makes a specialty of "health food" preparations, including nut marmalade, nut butter, and nuts packed in glass jars. These products are sold in the best shops and are purchased by well-to-do people. The workers are described as being, without exception, dirty. Their hands are filthy. One girl, who separated the unbroken shelled nuts with her fingers, had ulcers on

the back of her hands. During the rush season the workers, who are largely Italians on poor wages, take work home. Some of these homes are said to be indescribably filthy and crowded. In one case nuts were picked over by an Italian and his children. The father and one boy were tuberculous. The father had tuberculous joints, and during the time that he was engaged in this work he had had a knee-cap and part of the arm bones removed. The nut meats picked over in such houses by such persons lie on their tables over night, and on being returned to the factory are not washed or cleaned, but are packed into jars to be sold at 25 cents each, with advertisements calling attention to the purity and cleanliness of the goods. These specific instances are simply cited to indicate the need of health inspection of the tenements; the pure-food agitation involves an immense amount of work and demands the sympathy of people in every walk of life, for self-protection as well as for the protection of those who have to buy cheap foods.

NOTES ON THE TREATMENT OF DIPHTHERIA.

RHODES states in the *British Medical Journal* of February 17, 1906, that in addition to the administration of antitoxin the treatment upon which he relies consists chiefly in douching the throat repeatedly with boracic solution, douching the nose with a like solution if there is any sign of nasal discharge or soreness of the nostrils, and swabbing the throat with a solution of bicarbonate of soda, one teaspoonful to the pint of water.

The author uses boracic acid solution instead of stronger antiseptics because the children seem to be less upset by it, and it does not cause the mouth to become so dry as some other lotions do. The swabbing with bicarbonate of soda solution is done chiefly in order to assist in moistening the mucous membrane of the mouth. If the child does not stand douching well he sometimes swabs the mouth with weak carbolic acid solution, but does not often resort to this, preferring above all things not to upset the patient too much.

Rest is of the highest importance. If a child is refractory, raising on to blocks the foot of the cot usually has the effect of quieting the patient, and at the same time assists the heart in its work. Very great caution should be used in allowing a patient, even after an apparently mild attack, to sit up. The usual practice followed by the writer is to keep the child lying in bed without pillow (unless very uncomfortable in that position—a much rarer occurrence than one would expect) for at least a fortnight; then one pillow is allowed for a week, and then, if all goes well, two pillows for another week, and three for a subsequent period of five or six days; the patient is then allowed to sit on a couch each day, and about four days later is allowed to get dressed and walk a little.

The author believes that it is only by extreme caution in gradually accustoming the patient who has had diphtheria to the upright position that the terrible catastrophe of "sudden heart failure," of which we have all heard, and which some of us have doubtless seen, can be avoided. The periods of time mentioned are merely a basis of action; some cases have unfortunately to remain in the prone position for considerably longer. The author judges chiefly by the character of the pulse; a soft pulse usually holds him cautious, while a pulse that often varies in time or strength generally deters him from allowing any change from the prone position for a considerable time. The original severity of the case, the general condition of the patient, and the length of time ill before receiving antitoxin, are all points that should weigh with one in deciding.

After the first few days of the disease he is very chary of ordering aperients for children. He believes that they sometimes bring on vomiting, which may be very difficult to control. Enemata, if practicable, are better.

The writer does not give iron in the early stages, though he considers it most useful later on. It makes the mouth so very dry that he thinks its value constitutionally is entirely nullified in the early stages of the disease by the extreme discomfort that a parched, dried mouth and throat cause the child.

On the treatment of complications the author touches very briefly. In the paralysis which affects the various muscles of the limbs, the eyes, the pharynx, etc., he relies almost entirely upon complete rest of the whole body, and, where possible, of the particular muscles affected, and upon strychnine. In paralysis of the soft palate, with regurgitation of liquid foods, he has found that a jelly made of milk and isinglass, with brandy added, if thought necessary, and sweetened according to circumstances, is much appreciated by the children, and is

swallowed easily. It is very rarely indeed that he has to resort to nasal feeding, which upsets the children so much, and causes them often to struggle violently.

In those cases in which the heart is apparently failing rapidly—cases in which there is so often also uncontrollable vomiting—hypodermic injections of strychnine (gr. 1-30, or more) are invaluable; but he agrees very heartily also with those who say that brandy is of very great use in these cases. If rectal feedings can be retained, he orders them, giving about two or three ounces of peptonized milk and two or three teaspoonfuls of brandy in each, but never at intervals of less than four hours. If rectal feedings are not retained, he relies upon subcutaneous injections of brandy (about 20 minims) and strychnine alternately. So long as the heart is acting at all, he believes that there are nerve fibers still in such a condition that the administration of strychnine may help the heart to continue its work until its "hour of darkness" is passed.

The author has included rheumatism and arthritis as complications in deference to the opinion of some who regard them as really due to the toxin rather than the antitoxin of diphtheria. His own belief, however, is that they are always due to the antitoxin. He has never met with them in any case of diphtheria to which antitoxin had not been given; they are usually unaccompanied by any marked rise in temperature, though occasionally the temperature does rise to 102° or 103° F., and in one case reported recently by a general practitioner the temperature rose to 106° F. during the attack of arthritis, who regarded this case as one caused by the toxins, though antitoxin, it was found, had been given; other constitutional disturbances are not usually present in marked degree; and finally—in the author's opinion an important point—the rheumatism is rarely affected by such drugs as salicylate of soda or sodium and potassium bicarbonates, but usually yields quickly to purely local treatments, of which the best is the evaporating lead lotion or the lead and opium lotion.

With regard to the treatment of laryngeal diphtheria, whether private or secondary, the author does not say much, as his experience of such cases is comparatively small. He confesses, however, that he is very much averse to doing the operation of tracheotomy until it is quite obvious that it is an urgent necessity. The shock to the child is often very great, even if, as is his almost invariable practice, no chloroform is administered, and sometimes a person will collapse for no apparent cause during the operation, even if rapidly done. He believes that hot fomentations over the larynx, combined sometimes with the inhalation of steam impregnated with some such material as compound tincture of benzoin, and the administration of stimulants, of which brandy is the most efficacious, will often carry a child through until the antitoxin can do its good work. Having always latterly done tracheotomy, when it was required, by the "rapid method," trusting more to the sense of touch in the first finger of the left hand than to sight, it may be that the feeling of confidence that the trachea can be opened at a moment's notice has led the author to leave cases with laryngeal obstruction without operation in many instances in which he should formerly have felt called upon to operate. Whatever the cause, he knows that a number of cases that he has had with such obstruction have got better without operation, though some were so near to it that he stood for a considerable time beside them with a knife ready to his hand, while his feeling at the time was that the shock from the operation in each case would have been just sufficient to turn the scale against the patient.

What little experience the author has had of intubation has led him to abstain from its use, but he believes that in a few cases intubation, if done by a skilled man (with a long finger), would probably be of great value. The subsequent nursing of a child with an intubation tube in its larynx is often a matter of very considerable anxiety, and he does not think that a medical man in general practice would find it very safe to be far away from his patient for long.

1. He believes that the very slightest excuse should be sufficient for the diagnosis of diphtheria in a child; his opinion is that even so slight a sign as dryness or a parched appearance of the external nares in a child who seems poorly is sufficient to indicate that in most cases the manufacture of diphtheria toxins is going on, probably in the nasopharynx.

2. That diphtheria antitoxin never does any harm to a child, but rather it will assist in curing illness due to "something wrong in the throat or nasopharynx" in many cases even if that illness is not actually due to diphtheria.

3. That supposing the case to be one of diphtheria, as proved subsequently by the

appearance of obvious signs and symptoms, the time lost by delay in giving the antitoxin is often sufficient to render the chance of recovery very small.

4. That although many experienced workers in the field of infectious diseases insist that very large doses are much more efficacious than small ones, sufficient stress is not laid on the fact that small doses, even though given late in the disease, will often just turn the scale in favor of the patient, or at least assist the patient to fight the disease and hold it in check until arrival at hospital, where more antitoxin may be given.

5. That finally, if every general practitioner would carry a syringe and one vial of antitoxin, much more antitoxin would be given before the child was removed to hospital, the necessary delay in getting the antitoxin at present, and the difficulty sometimes in obtaining it, especially in country districts, being possible causes why this treatment is not adopted immediately in all cases.

ACUTE ARTICULAR RHEUMATISM.

HARGENS contributes a paper on this subject to the *Journal of the American Medical Association* of March 3, 1906, in which he has this to say in regard to the treatment of this disease:

First.—Place the patient in bed between dry woolen blankets, wearing a light nightgown, with open sleeves fastened with safety-pins. Keep the bedclothes dry at all times, and never cold and clammy; give him absolute rest and plenty of dry, warm air in a sunshiny room.

Second.—Withdraw all food until the alimentary canal has been thoroughly emptied and cleansed; then for the first few days employ a strictly skim milk diet; then begin to allow stale bread and milk products. If milk is not well taken, cereal foods and buttermilk may be used. The carbonated waters often assist the difficulty in taking milk. Exclude all tea, coffee, cocoa, and chocolate in the acute stages. When the patient has passed the acute stages he may gradually begin the use of fish, oysters, cottage cheese, and the white meat of barnyard fowls, carefully returning to the proteid articles of diet, and immediately abandoning them on a reappearance of the arthritic symptoms. Easily digested green vegetables, such as new peas, string beans, lettuce, asparagus, spinach, and a small quantity of baked and mashed potatoes are allowed. Exclude all acid and sweet fruits. Oranges are freely allowed. It will be well to keep watch of excessive amounts of starchy foods and heavy sweets.

Third.—Give a vigorous dose of calomel; follow this with Epsom or Rochelle salts, and thereafter keep the bowels moving from two to four times each twenty-four hours with the salts or some other agreeable form of saline laxative. The author is partial to the magnesium sulphate.

Fourth.—Give tub baths. Place the patient in water at 98°; after he has been in the tub five minutes, add hot water gradually to bring the temperature to 100° or 102°. Keep patient in the bath fifteen to twenty-five minutes, as he will bear, guarding against sensation of faintness or marked depression. Give patient skin friction, massage, and passive movements entire time he is in the bath, in the order named. In removing patient from the bath be careful not to expose the skin to the air; quickly throw a dry, warm sheet and blanket around him, and get him into bed between dry, warm blankets. Now pack hot bottles about him and gradually bring on free perspiration, keeping this up from three-quarters to an hour and a half.

Fifth.—Now begin to give ten to fifteen grains of sodium salicylate with a glass of alkaline mineral water every two hours. Half a glass of milk may be given with a little Seltzer water in place of the full glass of water if sodium salicylate causes great gastric disturbance. The author seldom employs more than two drachms of sodium salicylate in the twenty-four hours, and deems that dose sufficient for almost all cases. Under the treatment so far outlined one will be surprised at the size of the dose of sodium salicylate that can be given without getting the customary toxic effects and gastric disturbances. Experience proves that patients taking hot baths with free elimination can take large doses of depressing drugs without the usual toxic effects, and it is very seldom that the writer is compelled to modify his dose of sodium salicylate. Now, as soon as the patient improves and gets comfortable, try to lengthen the interval between doses and continue the work along the line of reduction.

Sixth.—Flood the system by the internal administration of large quantities of an alkaline mineral water, giving it to him at regular stated intervals. If mineral water is not at hand, employ pure water, holding sodium bicarbonate or potassium citrate in solution.

Keep the urine alkaline or neutral by the administration of alkaline mineral water.

Seventh.—Locally apply hot fomentations to the affected joints, or wrap in cotton-batting or wool and apply a splint.

Eighth.—Unless the weather is warm, dry, and free from sudden changes, keep the patient in bed for at least a week after the temperature has become normal. Caution him against exposure. It is astonishing how little exposure will bring on another attack within a week or ten days following an apparent recovery.

STAGNATION OF FOOD IN THE STOMACH.

To the *British Medical Journal* of February 17, 1906, McPHEDRAM, of Toronto, gives his views as to the treatment of this state. Gastric stasis being but a symptom, it follows that treatment is as varied as the causes on which it depends. Whatever the cause may be, the first object to be aimed at in all cases is to secure complete emptying of the stomach within the proper time.

There is a certain analogy between the functions of the stomach and those of the urinary and gall-bladders. They all act as receptacles. It is well recognized that retention of contents by the latter two is soon followed by infection, and that the infection causes decomposition of their contents, and catarrhal inflammation of their mucous lining. When such a condition is established, the only effective treatment is prompt and complete drainage. If that is secured the contents of each soon become aseptic, and the inflamed mucous membrame is quickly restored to a normal state.

The same statements are applicable to the stomach. Bacteria in great numbers and variety are always present in its contents, which quickly become decomposed if retained, and the irritant products excite catarrhal inflammation of the mucous membrane. If, under such circumstances, the decomposing gastric contents be promptly and effectively drained away, the decomposition is quickly arrested, and the mucous membrane restored to a normal condition. The marked effects of good drainage in gastric ulcer are well shown by the prompt relief of the symptoms and the healing that usually follows gastroenterostomy. This appears to afford strong ground for the opinion that in most cases the development of the ulcer is preceded by, and its continuance associated with, some degree of food stagnation. This is a reasonable theory, because hyperacidity usually occurring in association with gastric ulcer will often cause spasmodic closure of the pylorus. The correctness of this view is supported by the frequency with which free drainage of the stomach by gastroenterostomy is followed by the healing of an ulcer. Of course an ulcer situated near the pylorus is relieved of the irritation of the passing chyme if the passage be short-circuited by a gastroenterostomy; but an ulcer away from the pylorus should not be relieved by drainage in this way more effectively than by equally prompt discharge through the pylorus itself. There is at least considerable reason to believe that in all cases of intractable ulceration of the stomach there is some degree of gastric stasis, and that the persistence of the ulceration is due to the irritation caused by the stagnant fluid. If this be true, our first object in treatment should be to secure as prompt and complete discharge as possible of the stomach contents. If we can prevent delay of the food in the stomach beyond the time required for its chymification, healing should be rapid and permanent.

In the treatment of the large class of cases in which stasis is due to atony of the stomach, our first care should be to search for and remove the cause of the atony. It is often a part of general debility, but in many cases the evidences of general weakness may be very slight. The general condition should receive suitable treatment. All habits and conditions detrimental to health should be corrected—such as insufficient rest and sleep, indulgence in alcohol, insanitary surroundings, unsuitable food, overeating, excessive drinking (especially of iced liquids with food), and insufficient time between meals. Of all injurious habits, imperfect mastication is the most prevalent, and probably the most effective, in causing gastric stasis. Besides furnishing the stomach with masses that often cause traumatic injury to its walls and overtax its motor powers, the rapid eating attending this habit invariably leads to overeating. Physicians whose work leads them to examine the stomach contents of many persons must be struck by the great frequency of insufficient mastication. The unbroken masses of food increase enormously the labor of the stomach; if it is weak from any cause it is certain to be unequal to the task thrust upon it, and stasis of food must occur sooner or later. If the stasis recurs from day to day, in time it will be continuous and dilatation must be the ultimate conse-

quence. How minute should the food be made before being swallowed? That depends very much on the individual. The robust laboring man does not require food that is as finely divided or as easily digested as the office man with feeble digestive powers, or the neurotic woman "who enjoys her ill health." For both these latter all food should be reduced to fine gruel-like particles in the mouth before being swallowed. This is the best antidote to the taking of food improper in quantity and quality.

It will not be necessary to speak of the necessity of fresh air, recreation, and a proper holiday, with the tonic effects of change of scene.

Baths, hot and cold douches, cold compresses to the epigastrium at night, and massage do good. Regular exercises, more particularly of the abdominal muscles, are of much service, especially in women, as their dress interferes greatly with the proper action of these muscles, which are further injured in child-bearing. Systematic exercises taken morning and night are of great service in strengthening these muscles. It is irksome treatment, but the benefit from it will amply repay the time and trouble required.

Drugs are of little use in relieving gastric stasis. As there is excessive secretion of hydrochloric acid in the great majority of cases, the bitter tonics and stimulants, so much used, tend to increase the acid secretion, and may therefore aggravate the condition.

The drugs of chief use are probably those of a sedative and antiseptic character. As there is usually some general nervousness as well as gastric hyperesthesia, short courses of bromides often do good. The strontium salt is the best. The natural salicylate of sodium is a useful antiseptic, as it inhibits especially the growth of yeast cells. It also increases the flow of bile by rendering it more liquid.

The cases due to pyloric obstruction fall into two classes: those due to spasm of the pylorus, and those due to organic stenosis. Peptic ulcer in or near the pylorus in the early stage causes obstruction by exciting spasm; later there may be cicatricial thickening and contraction. These cases are often extremely rebellious, and the tendency of late has been to refer them for operation at once. But although the results of gastroenterostomy are usually very satisfactory, it does not restore the stomach to a state as good as normal. Therefore it should not be resorted to until judicious, patient treatment has failed to give relief. We should make an effort to lessen the activity by giving a liquid or very soft diet free from particles and irritants, and the use of antacids for the relief of pain and the lessening of excessive acidity. Regular lavage should be done for a time if there is material retention, and after emptying the stomach some sedative, as bismuth subcarbonate in full doses, may prove useful. Large doses of pure olive oil are often of benefit in soothing the stomach; they have the effect, also, of lessening the secretion of acid (Pawlow). If necessary, rectal feeding may be depended on for a short time, and then a gradual return made, first to a liquid diet, and later to solid food.

If these means fail there remains only a resort to surgical aid, but such a course should not be undertaken until medical treatment intelligently carried out for a sufficient time has failed to afford relief. During the last few years the author has had gastroenterostomy done in five cases in which no organic disease in the stomach could be demonstrated. In one, a farmer, pylorectomy was done before the bowel was attached to the stomach. He was very ill after the operation, but he made a very good, although slow, recovery. In three other cases the result was satisfactory, and had continued so when last heard from. All these cases gained from 30 to 40 pounds each in weight.

THE VALUE OF PROTEID DIET.

This subject is discussed by the *British Medical Journal* of February 17, 1906. It begins by pointing out that the amount of proteid considered indispensable for hard work is variously estimated to be from 100 to 150 grammes, but these figures have been arrived at by taking the customary diet of different persons doing such work and calculating from these data the average quantity of proteid consumed by them, the assumption being made that as they practically represent the sum of the experience of many generations their conclusions might be accepted as correct. It has remained for Professor Chittenden to attack this problem scientifically, untrammeled by any assumptions. His skepticism as to current doctrines appears to have been aroused by a visit from Mr. Horace Fletcher, an American gentleman resident for many years in Venice, who has thought out for himself certain principles in connection with food and feeding by which

he has not only freed himself from a long-standing digestive trouble, but has been able to bring his body into a very high degree of physical fitness, so that at the age of sixty, in the words of Professor Anderson, the Director of the Yale gymnasium, "Mr. Fletcher can do the work of trained athletes and not give marked evidence of overexertion; he performs this work with greater ease and with fewer noticeable bad results than any man of his age and condition I have ever worked with." Mr. Fletcher lays great stress upon slow and thorough mastication and complete salivation of food, but the fact to which our attention is called is that the average amount of proteid consumed by him when he was under constant observation by Professor Chittenden was only 41.25 grains, his body weight remaining practically constant. Moreover, it was shown by careful examination that he was in perfect nitrogenous equilibrium, the daily intake amounting to 7.19 grammes of nitrogen and the output to 6.90 grammes, showing the small daily balance of 0.29 gramme to the good.

This case led Professor Chittenden to investigate the subject more thoroughly. Starting from this evidence that the current estimates of the necessary amount of proteid may be too high, he first of all experimented upon himself, beginning in November, 1902; at that time he was forty-seven years of age, weighed 65 kilos, and was in the habit of taking an ordinary mixed diet. This he gradually reduced until his daily average of proteid was equal to 40 grammes, and upon this quantity he has since continued to live. The general effect has been to reduce his weight to 58 kilos, "to cause the disappearance of a rheumatic trouble in the knee which had persisted for a year and a half, and of such minor troubles as sick-headache and bilious attacks." He states that he has a greater appreciation of food, a keener appetite, and more acute taste. These results were obtained without entire abstinence from any particular article of food, except alcohol His breakfast has since consisted of a cup of coffee, with cream and sugar; his lunch of chicken, or sausage, or fish, with potato, biscuits, and butter, puddings, coffee or tea; his dinner of soup, lamb chop, or only bread and butter, vegetables, fruit tarts, and coffee. The average value in calories of his diet is 1549, as against 2000 to 2500 generally supposed to be necessary for a moderately active person of his weight, while the average nitrogen is 5.806 grammes instead of 16.

He next extended his experiments to four of his colleagues in the Sheffield Scientific School, who were willing to coöperate, and he gives the results, which were practically identical with those in his own case, although being heavier men they naturally required a larger amount of food, but in no case did the amount of nitrogen excreted exceed 8.99 grammes daily, which is very little over 50 per cent of the usually accepted amount.

His third experiment was on a detachment of men of the Hospital Corps of the United States army. Of the original twenty men, thirteen went through the experiment, which lasted six months. They were during the time kept under military discipline and subjected to the hard work of gymnastic training in the Yale University gymnasium. Their diet had to be regulated so as to please their palates and satisfy them, but this was done, while at the same time the amount of proteid was reduced by about 50 per cent, and the whole to a fuel value of 2500 or 2600 calories. The men were regularly weighed and measured and subjected to various dynamometrical tests, the result being that at the end of the time they had improved in every respect; in a few cases there was some loss of weight if the man had been somewhat fat at the start.

Finally, Professor Chittenden experimented with eight university athletes who volunteered for the purpose. They were all under training for athletic competitions, and took part in them while the experiments were going on. The results were in complete harmony with those already given. The reduction of proteid was to about 55 grammes daily, and upon this diet they maintained their health and strength and showed decided increase of muscular power. The average food value of their diets never exceeded 3000 calories. The excretion of nitrogen averaged 8.8 grammes.

The conclusions to be drawn from these remarkable experiments are that the current estimates of the quantity of proteid food necessary for hard, muscular work are excessive, and that vigorous health and strength with daily hard work may be maintained upon diets which are not only poorer in proteid but lower in total fuel value than is generally supposed. It may be suggested that these results were due to difference of climate, but they were carried out at New Haven, Connecticut, which lies in a latitude very similar to our own, and were continued through a winter which, we are told, was "unusually trying," and is generally more

severe than that of any part of the British Islands. Further, these results suggest that the successes claimed for so many apparently conflicting dietary systems depend upon the one point in which they all agree—that is, that they reduce the total quantity of food, particularly the proteid food, so we may conclude that reduction of quantity is of greater importance in diet than its chemical constitution. Further, these results throw a flood of light upon what seemed the paradoxical statements of Mr. Seebohm Rowntree, whose philanthropic investigation into the lives of the poorer classes was published in his well-known book on Poverty. His statistics have been quoted by both sides on political platforms to show the enormous proportion of the working classes in this country who are underfed, but no one who knew these classes as the medical profession does could help doubting whether the figures quoted did not conceal some fallacy. The truth is that Mr. Rowntree accepted the current estimate of 125 grammes of proteid as the amount necessary for a laboring man; and when he found, as he did in many cases, that the diet contained 90 grammes or less, he naturally concluded that the people were underfed; but in the light of Professor Chittenden's results the amount of proteid in the diets of Mr. Rowntree's working people was generally more than enough, being usually considerably above, and only in a few cases below, the 50 grammes which have been proved to be sufficient for the subject of these experiments.

DIRECTIONS FOR THE PREPARATION OF BREAD SUBSTITUTES IN DIABETES.

COCOANUT CAKES.

One ounce of German yeast, 4 tablespoonfuls of lukewarm water, 16 ounces of desiccated cocoanut powder. Mix into a paste, adding a little more lukewarm water, if necessary. Leave in a warm place for twenty minutes. Then add 2 eggs (beaten up in 3 or 4 tablespoonfuls of milk) and a little salt; mix well. Place into 16 small dishes or tins (well greased). Bake in a moderate oven twenty or thirty minutes.

(Almond cakes may be made in a similar manner, using almond flour in place of cocoanut powder.)

COCOANUT PUDDING.

One-quarter ounce of German yeast is mixed in a little lukewarm water, with ¼ pound of desiccated cocoanut powder. The mixture is kept in a warm place for fifteen minutes. Then ½ ounce of butter, a pinch of salt, and a little milk are added. All must be well mixed. The mixture is placed in a pudding dish, and baked in a moderate oven for twenty or thirty minutes until the surface is brown. This pudding can be eaten warm or cold. It may be taken with custard and sweetened, if desired, with saccharin.

ALEURONAT AND COCOANUT CAKES.

For the preparation of these cakes 2 ounces of desiccated cocoanut powder is mixed with a little water containing a small quantity of German yeast. The mass is then formed into a kind of paste, and this is kept for half an hour or longer in a warm place. The small amount of sugar contained in the cocoanut is almost entirely decomposed by the fermentation produced by the yeast, and the cocoanut paste becomes spongy. Two ounces of aleuronat, one egg beaten up, and a small quantity of water, in which a little saccharin has been dissolved, are now added to the cocoanut, and the whole well mixed until a paste is formed. This is spread out on a tin and divided into cakes, which are baked in a moderate oven for twenty or thirty minutes.—*The Practitioner*, April, 1906.

USE OF SUPRARENAL PRINCIPLE IN NEURALGIA AND NEURITIS.

To *American Medicine* of February 24, 1906, CARLETON writes to make a strong indorsement of adrenalin for neuralgia. His first case was one of neuralgia of the left infraorbital nerve, the entire course of which was angry-red and edematous, with sympathetic shooting pains in the supraorbital, maxillary, and temporofacial. The patient, the wife of the leading man in a theatrical company, said she had suffered similar attacks about twice a month for some years, always being greatly prostrated for several days. Morphine temporarily relieved when given in full doses, and depressing doses of acetanilide seemed to "lessen the throbbing," to quote the patient's own words. Acting on this hint from acetanilide that local hyperemia was at least aggravating the pain, the author determined to apply adrenalin—enough by emptying the neighboring arterioles to relieve temporarily the irritated nerve of the pressure upon it, yet not raise the general tension. As it was necessary for the patient to play that night, opiates were out of the question. Temporary relief was all the

author could hope for. He applied possibly 15 drops of 1-to-8000 solution of adrenalin chloride, following the course of the infraorbital, where the chief trouble obviously lay, carefully timing the result. In three and a quarter minutes the patient said the pain was gone and only a throbbing remained. In a minute more even that ceased. The sudden cessation of pain made her sleepy, and she was left in a darkened room. Upon returning to the room she was found to be still asleep. The author directed that she be allowed to sleep as long as possible, and she awoke in five hours entirely free from pain. No return followed, and as weeks passed without a recurrence it was evident that in her case adrenalin had been not only a palliative but a specific. This was September 13, 1903. In a letter dated Halifax, N. S., December 19, 1905, replying to the author's inquiry, she wrote: "As to my neuralgia, I have only had a few slight touches of it since that treatment, and they were so vague as not to make another treatment worth while."

The second case occurred at Cocoanut Grove, Florida. The patient had neuritis of the palmar and plantar terminals—small red nodes, exquisitely painful. As usual in such cases patient was just convalescent from typhoid. He had also a bad mitral lesion, from which he died four months later. He had walked but a few times in two weeks when the author first treated him. When the pain made sleep impossible his physician had always given him morphine sulphate 0.024 gm. (3-8 gr.), atropine sulphate 0.6 mg. (1-100 gr.), repeating if necessary, and suggested the author doing this in like cases when he left the patient in his charge. On his next severe attack he applied adrenalin chloride solution 1 to 2000, about 0.06 Cc. (1 m.), to each painful spot. In five minutes all pain was gone, and the patient slept soundly all night. Next morning the treatment was repeated. The patient went down to breakfast, and had no recurrence during the remaining two weeks of his stay.

Cases 3, 4, 6, 8, 11, 14, and 16 were of the infraorbital or supraorbital; in some there was local edema, some were accompanied by shooting pains in the malar, dental, or temporofacial branches; one case by a dull pain in the upper malar. All yielded within four minutes to adrenalin, applied as in Case 1, except the last three, in which adrenalin ointment was used, 1 to 1000, and not over 0.06 Cc. (1 m.). This preparation the author found easier to apply, and experiment showed him that from 0.06 Cc. to 0.12 Cc. (1 to 2 m.) was all that was necessary, applied along the course of the nerve where the pain was greatest. The branch acting through sympathy needed no application.

Case 9, that of a student nurse in St. John's Hospital, Long Island City, had a slight recurrence after sleeping seven hours, but it yielded instantly to a repeated treatment, and no relapse occurred in the two months she remained under the author's observation. It was her first attack and was of unusual severity, the upper infraorbital region being turgid and angry-red, and the supraorbital and temporofacial viciously active in sympathy.

The time between application and perfect relief did not exceed four minutes in any case, and great care was taken to avoid possibility of hypnotic suggestion causing or aiding application.

Case 5 was a mild sciatic neuralgia. Patient had had many attacks of great severity, each beginning in this mild form. The author wished to await the full onset, but the patient begged not to allow the case to go further. Applied 0.12 Cc. (2 m.) of the ointment along the course of the nerve. No pain remained after six minutes, though in four it was barely perceptible. No recurrence in three months. The author has not heard since.

Cases 7, 13, and 18 were temporofacial. Same treatment and same result. Case 18 was that of the author's nurse at Dr. Ross's Health Resort, Brentwood, L. I. Her previous attacks had been frequent and savage for two years, recurring usually about every ten days and defying treatment. She came to the author's room one day about noon and said it was impossible for her to keep up any longer. She had not slept the previous night and the pain was unbearable. The author applied 0.06 Cc. (1 m.) of adrenalin ointment, beginning at the juncture of the temporofacial and malar areas, where the pain was most acute, and continued it along the supraorbital. The upper branches of the temporofacial, though painful, were left untouched. To avoid hypnotic suggestion, the author merely told her the application might put her to sleep after several hours. In 3 minutes and 35 seconds from the application she said the pain was gone. This was done on September 15, and up to December 23, when she replied to a letter of inquiry on the subject, there had not been the slightest recurrence, although her general health had

at times been far from good. This patient, as well as the one following, was under the supervision of Dr. William H. Ross, Brentwood, L. I., owner of the Ross Health Resort, president of the Suffolk County Medical Society, graduate of the College of Physicians and Surgeons, New York City, and alumnus of the Presbyterian Hospital, New York City. These details are mentioned because he was the first physician the author found who would consent to take even a languid interest in the subject.

Case 19 was of great interest. Patient was about twenty-six, and had suffered from general neurasthenia for nearly three years, with several brief remissions. When the author saw her in August she was very anemic, with partial paraplegia, aphonia, great prostration, but without the usual mental symptoms accompanying such a condition. Along the spine in the lumbar regions were three painful nodes, which had been there without remission for two years. With Dr. Ross's consent the author told the nurse to apply 0.06 Cc. (1 m.) of adrenalin ointment to one spot and plain vaselin to the other two, but gave no hint of the reason, or that the unguents were different. The nurse did this, reporting that the pain in the node treated with adrenalin disappeared in about five minutes, but that in the others remained. Next morning Dr. Ross himself applied adrenalin ointment to the other spots, with similar result. From what cause he did not know, but the patient began shortly to sleep without anodynes, to gain flesh and strength, voice and appetite returned, she walked a little alone, and no recurrence of the pain had occurred up to the time of the departure of the author late in October. Part of this may have been due to relief from pain.

THE GERM-DESTROYING PROPERTIES OF TOBACCO SMOKE.

It has often been confidently stated that tobacco smoke is a powerful germicide, but so far this property has not been assigned to any one particular constituent of the smoke. The composition of tobacco smoke is, of course, complex, but everybody knows that tarry oils are a principal constituent, and certainly many oils are powerfully antiseptic. Nicotine, again, is a strong disinfectant, but the quantity of this poison in tobacco smoke is minute, if, indeed, it is present at all. At least in a number of chemical analyses of tobacco smoke made at different times it was difficult to declare with absolute certainty that nicotine was an important constituent. The oily matter which accumulates in a tobacco pipe is decidedly poisonous, but it does not contain any appreciable quantity of nicotine, the chief constituent being the very poisonous oil pyridine. Tobacco smoke contains a decided quantity of the very poisonous gas carbon monoxide, which has been used for preserving purposes, and which therefore must possess germicidal properties.

Some simple experiments which have recently been made would seem to confirm the observation that one of the principal constituents accounting for the germicidal properties of tobacco smoke is the powerful antiseptic formaldehyde. The amount present is more than just appreciable, for if water through which a few puffs of tobacco smoke have been passed is tested for formaldehyde the result is strikingly positive. The quantity of formaldehyde in tobacco smoke would appear to depend on the quality and kind of tobacco smoked. Thus the cigar appears to yield more formaldehyde than the pipe, and the pipe more than the cigarette. Possibly the peculiarly irritating property of the smoke issuing from the glowing end of a cigarette or cigar or from the bowl of a pipe is due to formaldehyde.

It has more than once been stated that tobacco smokers enjoy an immunity from certain diseases, and the frequent presence of a powerful antiseptic in the mouth, nasal passages, and sometimes the lungs (as in the case of those who foolishly inhale tobacco smoke), would to some extent justify the statement. When it is considered that in the nose a vast number of microbes are hourly deposited, it is conceivable that these may be effectively destroyed by the frequent passage of tobacco smoke through that organ. In the same way the organisms exposed to tobacco smoke in the mouth would succumb. Formaldehyde is one of the most powerful disinfectants we possess, 1 part in 10,000 parts of water serving to destroy all microbes, while such a dilute solution has practically no poisonous action on the human organism. All the same, it is most undesirable that this fact should stimulate the practice of smoking tobacco to absurd excess, for tobacco poisoning is a greater reality than many persons think, and to employ tobacco in abusive quantities for the sake of destroying microbes might amount possibly to killing the seeds of one disease only to contract another.—*Lancet*, April 7, 1906.

IMPERIAL DRINK.

This useful diuretic may be prepared simply as follows: Dissolve a large teaspoonful of cream of tartar in one pint of boiling water, add a little sugar, and a little lemon for flavoring. When cold the whole should be strained. Another method of preparing Imperial Drink is as follows:

Acid potassium tartrate, 1 ounce;
Tartaric acid, 1 ounce;
Oil of lemon, 12 minims;
Refined sugar, 16 ounces;
Boiling water, 1 gallon.

—*The Practitioner*, April, 1906.

THE TREATMENT OF RINGWORM.

MACLEOD in the *Clinical Journal* of March 28, 1906, says the choice of treatment in an individual case depends on various considerations, such as (1) the extent of the ringworm; (2) its distribution, whether it is definitely circumscribed or widely disseminated over the scalp; (3) its clinical characters, whether it is dry and scaly, or mixed, moist, and suppurating; and (4) on the age of the patient and coarseness of the hair. Ringworm is much more easily cured in the infant than later when the scalp is thicker and the hair coarser. The scalp must be examined in a good light, and the diseased area should be marked round with an anilin pencil. If the ringworm is confined to a few definitely circumscribed patches the hair for half an inch around the patch should be clipped short; if the disease is widely disseminated the scalp should be shaved or the hair cut short with patent clippers, leaving a small fringe in front for the sake of appearance. After the hair has been cut the first thing to do before attempting active treatment is to apply a parasiticide ointment over the whole scalp to stop the spread of the disease. For this purpose an ointment containing half a drachm each of sulphur precipitate and salicylic acid in an ounce of vaselin should be rubbed in twice daily, and the scalp washed every day with soft soap or a mixture of two parts of soft soap and one part of spirit, and, after it has been dried, swabbed over with carbolic glycerin (1 in 8), or tincture of iodine in 60-per cent spirit (1 in 8). This limiting treatment may be persisted in for a week before more active measures are adopted.

With regard to a choice of the method, it may be repeated at the outset that in ordinary cases of tinea tonsurans no parasiticide short of a caustic when applied to the scalp is capable of reaching the fungus in the hair-bulb, except in the case of infants, when the scalp is covered with fine lanugo hairs, and the sulphur and salicylic ointment mentioned above will generally effect a cure. There is another exception to this statement, and that is suppurating ringworm of the scalp or kerion, where the patches are irregularly swollen and dotted over with small pustules or patulous hair-follicles exuding pus. The treatment of such cases consists of the constant application of mild antiseptic dressings. On no account should the lesion be incised, as has been occasionally done from mistaking them for superficial abscesses, since instead of obtaining pus from them only a few drops of a serosanguineous fluid will ooze from the wound. The whole scalp should also be treated daily with carbolic glycerin. For some time after the inflammation subsides the affected areas remain red and bald, but in about a couple of months the hair will be found to be growing again in the form of fine, downy hairs. These cases are easily cured, and the suppuration may be regarded as nature's method of combating the disease.

SOME POINTS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

In the *Albany Medical Annals* for April, 1906, LAWRASON BROWN writes on this topic. At the outset he states that the best results are obtained only by individualizing the patients. Were it possible the physician in charge of the sanatorium ought to take the patient's history himself, and not relegate it to one of his assistants. This, however, is impossible for him; but he should as soon as possible come to know the mental temperament of each patient, and establish a bond of sympathy between the patient and himself. The patient has to be told and to have explained to him each detail of the treatment, and the reason for it. Patients quickly learn one from another the disastrous results of breaking rules. The sputum and urine are carefully examined, and reëxamined repeatedly if necessary. Every patient should be kept for at least a week, not in bed necessarily, but at rest on a couch or in a good reclining chair. At the end of such a period the history and the results of all examinations are carefully gone over, and the proper amount of food, exercise, and rest prescribed. There are, it seems to the writer, four contraindications to exercise: elevated temperature, rapid pulse, loss of weight, and blood in the

sputum. He uses a little card which will fit in the waistcoat pocket and be at hand for ready reference. On it is printed the following:

RULES FOR EXERCISE.

(Exercise means walking. Special permission must be obtained before indulging in other forms of exercise.)
None for one week, then ask about it.
None if feverish.
None if blood in sputum.
None if loss of weight.
None if fast pulse.
Never get out of breath.
Never get tired.
Never run.
Never lift heavy weights.
No mountain climbing.
Go SLOW.
Exercise regularly and systematically whether rain or shine.
Walk up-hill at the start so as to come down-hill on return.
Remember always that you will have to return.
Rest one-half hour before and after meals.

The reverse side contains only the patient's name, and is left blank below for special directions. The author has found that he has obtained the best results when he carefully prescribed the time to be devoted to exercise and not to distance. Some patients will take advantage of us in either case. Ten minutes at first in the morning, then ten minutes both morning and afternoon, which should be carefully increased to one-half hour morning and afternoon, is sufficient for some months. Too little exercise when the disease is fully arrested, and especially when the patient purposes returning to work, is a mistake often made in health resorts. To plunge into the "strenuous life" from one of ease and rest is disastrous to many so-called "cures." No hard and fast rules can be drawn in regard to what exercise some patients can stand. It is unwise to predict a speedy demise for all patients who indulge in overexercise. The author recalls well a strapping youth of twenty, who one afternoon occupied the pitcher's box for a local baseball team. He seemed none the worse for it, but after a little "heart-to-heart" talk he promised to be more cautious. The writer heard recently, however, that his good resolutions waned last summer, and he pitched professional baseball and enjoyed good health. Such cases the author believes, however, to be very exceptional. Lawn tennis is in most sanatoriums prohibited, as well as bowling and all sports that involve active use of the thoracic muscles, or that are apt to raise the blood-pressure.

The author has dwelt so fully on exercise and rest as it seems to him to be the phase of the modern treatment of pulmonary tuberculosis that is least understood.

That good, pure air is requisite every minute of the twenty-four hours is now well established. But the author insists upon one point: no structure that needs to be ventilated is as good as an open veranda. For this reason all rooms, tents, and shacks are inferior to a good veranda for sitting or sleeping out. Sleeping out-of-doors bids fair now to be overdone in some cases. It does not agree with all patients, and is not necessary if the patient spends eight to ten hours a day in the open, and sleeps in a well-ventilated room. The author feels, however, very strongly about the question of sleeping out for patients, who, returning home, are forced to work indoors all day. For these he believes it is almost a *sine qua non* of health, and should be followed if at all possible.

Hemoptysis in many cases seems to be directly connected with a sudden increase in the blood-pressure. A single act of overexertion, a violent paroxysm of coughing, mental excitement, violent emotion, all are direct factors in the etiology of hemoptysis. In this connection the frequent recurrence of hemoptysis in the early morning hours when as the night wanes consciousness returns wholly or in part is suggestive. Professor Howell in his recent published work on physiology has expounded a theory of sleep which seems to explain these matutinal hemoptyses. By the use of the plethymograph he has demonstrated a peripheral dilatation of the vessels during sleep, due he thinks to the fatigue of the vasoconstrictor centers in the medulla and the consequent loss of tone of the peripheral vessels, thus leading to cerebral anemia. However this may be, the fact is that a dilatation of these vessels occurs during sleep, more pronounced during deep slumber, and marked by many sudden oscillations as consciousness gradually returns. An even pressure in the pulmonary vessels, although high, seems to be of less danger to the patient than any sudden increase. For these reasons hemoptysis is often apt to recur in the early morning hours; the patient awakes spitting blood.

To dwell upon the need for absolute rest in a semirecumbent position is unnecessary. For the reasons mentioned the utmost calm and quiet should be preserved. No whispering should be permitted, and even the most serious hemoptysis should be treated apparently as the most casual occurrence. The author does not mention the long list of

remedies, suspicious in itself, that have been recommended, nor does he take the time to recount even all the possible complications and their treatment, but outlines what seems to be the most rational procedure in the treatment of hemoptysis. The patient having been gotten to bed and quieted, his clothes may be removed. One of our German confrères has related an instance where a patient put to bed for hemoptysis was found at the end of two weeks still to have his shoes on. Possibly, though it is not so stated, his attendants wished to take no chances about his dying with his boots on. Slight hemoptysis, besides rest in bed, restriction of the diet for a few days, and codeine (gr. ¼ q. 4 h.), needs little treatment. Severe and repeated hemoptysis calls for the greatest care. The patient should be in the semirecumbent position. The windows should be fully opened, but the temperature of the room not allowed to fall too low. Small doses of salts should be given every morning. The diet should include nothing hot, no tea or coffee, and the fluids should be reduced to a minimum. In other words, the patient should be treated for aneurism. The blood-pressure may be lowered by Esmarch bandages around the limbs, three only being tied off at one time, and changed every twenty minutes. The circulation should be equalized by morphine hypodermically (gr. 1·8 q. 4 h.), but the best means we now possess for controlling the blood-pressure lies in the nitrites. Amyl nitrite should be administered at once in the case of a severe hemoptysis, a second pearl of three minims being given in two or three minutes if necessary. This can be frequently repeated, and it can be put in the hands of the patient himself. The effect of this drug, strongly recommended by Hare of Australia, is very evanescent, and in some cases cannot on account of the profuse bleeding be inhaled. For this reason nitroglycerin, long used by Flick, is under such circumstances to be preferred. In severe hemoptysis, however, it is always advisable to administer drugs hypodermically. Consequently nitroglycerin tablets hypodermically, if known to be reliable, are to be preferred to the spiritus glycerylis nitratis by mouth. Sodium nitrite is much more stable, less likely to be followed by untoward symptoms, and while slightly less powerful is a trifle more prolonged in its action than nitroglycerin. It can be given hypodermically in one-grain doses, and it is often wise to administer it with the morphine, just after the amyl nitrite. The danger of these drugs, however, lies in the fact that the blood-pressure may be reduced to too low a level, and it needs to be carefully watched. In recent cases the author has kept upon the patient's arm the cuff of the sphygmomanometer and taken frequent readings. An intelligent nurse may soon be taught to take careful observations. By these means the pressure may be kept between certain levels, and sodium nitrite administered only when the upper limit is exceeded. The cuff may further be used as a tourniquet, if necessary, and seems to cause the patient little or no discomfort.

Since he has used this treatment of hemoptysis the author has had but few opportunities to test its value, and no treatment of hemoptysis can be said to be of value until it has been tried in a large number of cases. It has but one recommendation: it seems to be less empirical than many methods of treatment heretofore advocated and followed. To prevent the matutinal recurrences of hemoptysis, he has given a dose of morphine and sodium nitrite a few hours before the usual recurrence in the morning, and it has seemed of benefit in some cases.

APPLICATION FOR PAINFUL AND BLEEDING HEMORRHOIDS.

Stovaine, 7 grains;
Adrenalin, 1 to 1000, 1 drachm;
Water, 6 drachms.

Moisten a tampon of cotton, apply to the painful part, and cover with a piece of rubber dam.

Or the following suppository may be used:

Stovaine, 1 grain;
Orthoform, 1¼ grains;
Adrenalin solution, 1 to 1000, 4 drops;
Extract belladonna, ¼ grain;
Coca butter, 45 grains.

Make into a suppository.

—*La Presse Médicale Belge*, April 6, 1906.

INFANT FEEDING, WITH SPECIAL REFERENCE TO THE EMPLOYMENT OF CITRATE OF SODA.

The *Birmingham Medical Review* for April, 1906, contains an article by WYNN upon this theme, to which we have more than once called attention. The author's experience of this method consists of sixty-nine cases, which have been treated since August, 1904. The majority of these were infants suffering from milk dyspepsia. These infants were seen in two stages. In the first the mother tells us that the child is always in pain and is wasting; the abdomen is hard, the motions

green and contain undigested curds, and there is flatulence, with some diarrhea or vomiting. Under treatment these children soon show improvement. The down-hill course is usually arrested in ten days to a fortnight, and progress is thereafter steady. In the second class the mother, finding that cow's milk in ordinary dilutions did not agree, has diluted the milk still further, until the child is taking mixtures containing as little as 0.5 per cent of proteids. The child does not appear urgently ill, although wasted to a skeleton; he does not scream with pain from indigestion, but is flabby, anemic, and constipated. These cases take much longer to recover, the stomach having been accustomed to such dilute mixtures. Three grains of sodium citrate to the ounce of milk are usually required to begin with, and one must proceed very cautiously before two parts of milk to one of water can be taken with comfort. Any fermentation present from the dyspepsia may, of course, be treated by suitable remedies. If the treatment causes constipation, this is usually easily corrected with carbonate of magnesia. Four slight cases of scurvy in infants between seven and ten months old (three previously fed on patent foods, and one on peptonized milk) were treated with unboiled citrated milk alone, without the addition of fruit juice or raw meat juice. The only signs present were anemia, bone tenderness, a sallow appearance, and some redness of the gums, and these soon yielded to fresh milk containing three grains of sodium citrate to the ounce.

The method is very applicable for weaning healthy children. In nine cases under the author's care the mothers suffered from phthisis, epilepsy, or nephritis, and were compelled to give up nursing. In such children sodium citrate in the strength of one grain to the ounce of milk usually suffices, and the milk can be given in the proportion of two parts to one of water.

So far as the author is aware, the method has not previously been applied to adults; but when milk-feeding is necessary for any length of time, it should be useful. In gastric ulcer, milk, even when peptonized, is often ill borne; but in eight cases of this condition the author found citrated milk to be very successful, although previously milk in any form had been rejected or caused pain. It is best in these cases to prevent clotting altogether by using at least three grains of the salt to the ounce of milk, and then slowly diminishing the amount until simply diluted milk can be borne. In pneumonia milk sometimes produces distressing flatulence; in two such cases citrated milk relieved this symptom. The author has had no opportunity of applying the method in cases of typhoid fever, but theoretically it should be of advantage in certain cases, especially if Wright's contention that decalcified milk will prevent the tendency to thrombosis will hold. The author has prescribed this method occasionally in cases of excessive gastrointestinal fermentation, gastric carcinoma, and nephritis, in which there has been a difficulty in digesting untreated milk, and has been satisfied with the results obtained.

Too much must not be expected of this method. Sodium citrate has no antibacterial or antitoxic action, and will not neutralize the effects of impure milk. It does not aid us in the treatment of the severe infective diarrheas of children; in these cases milk in any form must be stopped, but during convalescence we may commence tentatively to return to a milk diet by alternating citrated milk with albumen water. In cases of infantile atrophy, if due to improper feeding, citrated milk may be found to agree, but in the primary cases occurring apart from other constitutional or organic disease some other method is to be preferred. These infants have a difficulty in assimilating fat, but absorb proteid and sugar comparatively well, so that one of the sweetened brands of condensed milk is often useful. In other cases of secondary atrophy, the result of certain diseased conditions, citrated milk often agrees at least as well as other mixtures, but more investigations on its use in such cases are required. Care, of course, must be taken not to mistake such organic disease of the stomach as congenital pyloric stenosis for simple milk dyspepsia. Sometimes it is the fat of the milk which disagrees and causes diarrhea; sodium citrate will not correct this, for it only deals with the curd.

The method will find its chief sphere of usefulness in the out-patient departments of hospitals, where many children must be seen in a short time. It is the only method available for hospital patients which prevents overdilution of the milk. The directions to the mothers are simple and easily remembered. The only error the author has found is that one or two mothers have given the citrate solution separately and not in the

milk; but if each mother at her second visit is questioned as to her use of the medicine, this is easily corrected. If the infants are weighed every week before being seen, their progress can easily be noted, and the treatment continued or modified as may be necessary. When for any reason the child had not been brought to hospital and the treatment had been omitted, like Dr. Poynton the author has found that the mother testified to the efficacy of the method by asking for some more medicine, as the child had not been so well and had been sick. As a result of his experience Wynn reaches the following conclusions:

1. The common cause of milk dyspepsia is the density of the clot formed in the stomach.

2. Among the poor this leads to overdilution or the use of condensed milk; among the well-to-do it accounts for the wide-spread use of proprietary foods and the consequent lack of fresh food.

3. Sodium citrate increases the digestibility of milk by lessening the amount of clot.

4. By its use milk can be given in a more concentrated form and overdilution prevented.

5. Because of its cheapness and simplicity, the method is available for the poor.

6. Among the rich it provides a substitute for proprietary foods.

7. There is no danger of scurvy or rickets.

8. Its chief indications are (1) for correcting milk dyspepsia, (2) for weaning a healthy infant to cow's milk.

9. It is useful in adults when untreated milk is ill-borne, as in cases of gastric ulcer, gastritis, acute pneumonia, typhoid fever, etc.

10. It is useless in severe gastroenteritis, fat dyspepsia, when the milk is impure or adulterated, and in primary infantile atrophy.

THE OCCURRENCE OF ABORTION AND PREMATURE LABOR.

McCann in a lecture reported in the *Clinical Journal* of April 18, 1906, asks what is to be done with regard to inevitable abortions. He says supposing you are called to a case where an abortion is inevitable, where there has been free hemorrhage and the ovum is protruding, what is to be done? You, of course, cannot wait there all night, and you must do something. The best treatment is to give the patient 30 minims of the fluid extract of ergot, and order that to be repeated every four hours if necessary, then take a piece of iodoform gauze (which you should have in your bag), at least one and a half yards in length, and four inches broad, and having first of all cleaned the external genitals with soap and water, and if necessary cut away some of the vulvar hairs, which are frequently matted with blood and discharge, swab the external genitals over with 1-in-2000 corrosive sublimate, and the vagina with a similar solution, expose the cervix with a speculum or retract the posterior vaginal wall with two fingers, and then with a pair of forceps take hold of the end of the gauze and plug it in as tightly as possible into the cervix and leave the remainder in the vagina. There are to be no more pledgets of wool with a string attached, and no more pieces of dirty cotton used. You ought to use clean gauze, and then you will never see septic abortions, which are still so frequent in practice. From one patient the writer removed a dirty pocket-handkerchief which had been employed as a vaginal plug! Use this iodoform gauze, plug it into the cervix, and fill the vagina with it, give a dose of ergot, and then you can go home to bed. When you return next morning, take out the gauze, and probably you will find the fetus will be on top of it.

Supposing there is considerable hemorrhage and the cervix is not sufficiently well dilated, what is to be done? In these cases the author believes the best treatment is to use a tent. There are tents and tents. If you are going to use a tent, you must use one in the way a surgeon would use it if he were going to insert it into the abdominal cavity. That is to say, your tent must be aseptic, and it must be inserted with all precautions which you use for a surgical operation. Unless you feel confident on this point do not use it. The question then arises, what tents will you use? The best are the laminaria tents, and you can make them aseptic by keeping them at least fourteen days, either in a solution of absolute alcohol or in a solution of iodoform and ether 10 per cent. The latter is the one which is preferable, for the reason that the ether evaporates and leaves a coating of iodoform on the surface of the tent. The author is one of those who believe in iodoform. Admitting it has a horrid smell, and the patients hate the smell of it, he thinks that if you point out to them the great advantages it has as regards safety they will put up with it. For wounds about the vagina and rectum there is no doubt iodoform gauze keeps the parts aseptic in a way that no other gauze

does. He has used sal alembroth, double cyanide, and other gauzes, but they are not to be compared with iodoform in efficacy.

In introducing a tent, then, you take the same precautions in cleansing the vulva as for other operations, for it is from the vulva that most of the infection is carried, especially among the poorer classes. You are called to a miscarriage case and find the vulvar hairs matted together with blood and discharge, and it is really absurd to suppose that unless you clean the external genitals thoroughly you will ever get a case to do well. If you are using a tent, you must cleanse the external genitals, and having exposed the cervix you may pull it down with a vulsellum just to fix it, then introduce the tent into the cervix, using that size which you find from your examination will pass into the cervical canal. The important point is to make sure that you get the tent into the cervical canal, and that its extremity is flush with the external os. To insert a tent and leave half of it out is worse than useless; it must be entirely in the cervical canal, and the end must be flush with the external os. Having got it in, you keep it there with a plug of iodoform gauze, and should not leave it *in situ* longer than six to eight hours. You then take it out, and frequently after you have taken it out the uterus will be sufficiently dilated to allow the finger to pass in. If it is not you put in another tent and repeat the process. The great advantage of a tent is that it stops hemorrhage, and it is the best of all dilators for the cervix. Metal dilators, especially the larger sizes, tear the cervix, they do not dilate it. The tent, however, swells, and by its actual presence in the cervical canal stimulates the fundus to contract whilst the cervix dilates; in fact, it causes an imitation of the normal mechanism. Unfortunately, tents were given up because of the complications which arose from using them, simply because practitioners would persist in carrying sponge tents and laminaria tents at the bottom of a dirty bag and put them into the cervix without previous precautions, hoping for a good result. But if you use tents in an intelligent and clean manner they will yield most excellent results, and there is no method of dilating the cervix to be compared in the matter of efficiency with them. While the writer does not like to be prophetic about anything, he feels that tents are going to be used much more in the future.

Supposing you have a sufficient degree of dilatation, you then proceed to remove the ovum, and in removing the ovum the best instrument is the finger. In doing this the writer mentions a little practical point, namely, that in order to reach the fundus with the finger it is always well to tilt the uterus slightly backward, so that you get it quite straight. If you press the fundus downward and forward, you will increase the difficulty in reaching the top of the uterine cavity with the internal finger. Moreover, in some cases it is advisable to use the middle finger, because it is longer, and with it you may hook out any loose pieces of placenta or membrane. In that way you simply clear out the ovum, and if there are any remnants left behind you may use the curette. And here let it be said that the curette should be used with the greatest gentleness; it should be employed rather as a rake than as a scraper. It is very easy in these abortion cases to scrape a hole in the uterus. Some books tell you to go on scraping until you get down to firm tissue. If you do that the firmest tissue which you will get down to will be the pelvic bones! And following that advice, the author has, in his experience, seen several cases in which a hole has been made in the uterus, simply because men forget that the uterus is extremely soft, and it is easy not only to scrape a hole in it, but to push a curette through it. A strong man with a curette in his hand can do a great deal of damage. You should, in such cases, use a blunt curette, and use it with great gentleness.

Having cleared out the uterus in that way, the next step is to sponge out the cavity with 1-in-3000 corrosive sublimate. The author is a believer in corrosive sublimate, whatever may be said about it on theoretical grounds. He believes it does its work well. In sponging out the uterus you will find squares of gauze very useful, about two inches square, wound round a pair of long uterine forceps; it is an instrument you cannot very well do without. Armed with long forceps, iodoform gauze, a little cotton-wool, and a bottle of corrosive sublimate tablets, you are equipped to attend any case of abortion. If you wind the gauze round these forceps and wipe out the interior of the uterus, you will find it very efficacious. He believes swabbing to be more efficacious than douching, and, moreover, douching requires an apparatus, and you have either to take one yourself or use one belonging to the patient, and the latter will probably be dirty. These squares of gauze catch in their meshes little pieces of placenta

and membrane and clot, and you will be astonished how clean you can get the interior of the uterus by that method.

If there is no very great amount of oozing you need put nothing in the uterus at all. If there be very free oozing and you are afraid to leave it, you can put in a plug of iodoform gauze. You may leave this gauze *in situ* until the next morning, when it should be pulled out with forceps. The author strongly advises against the use of fingers, and to make sure that all work is carried out in a cleanly manner. The patient is then left alone. No douching is required. It is so common now to see that patients, after a miscarriage, are douched for eight, or nine, or ten days. But why should you douche them. The douche does not go into the uterus; it washes away the little discharge from the vagina, but if the vagina is clean that discharge will run away. The douche, in fact, often introduces a source of danger, especially if it is given in an unclean manner, and many patients are infected afterward by the douche. It is necessary to keep the external genitals clean by frequent bathing with 1-in-2000 corrosive sublimate solution and the wearing of an antiseptic diaper.

A POWDER FOR BED-SORES.

Powdered talc, 2 ounces;
Powdered boric acid, 2 drachms;
Powdered tannic acid, 1 drachm.

Dust over the part affected.

—*La Presse Médicale Belge*, April 1, 1906.

SOME POINTS IN THE TREATMENT OF CHRONIC BRIGHT'S DISEASE.

To the *Lancet* of April 14, 1906, WEST contributes a paper, and in speaking of chronic interstitial nephritis has this to say: In all these cases, when the correct diagnosis is made and the relation of the symptoms to granular kidney recognized, the adoption of appropriate renal treatment in addition to the general measures indicated is likely to be, and as a matter of fact is, in many cases followed by beneficial results. In the later stage of granular kidney the arterial tension gives many useful indications for treatment. A patient with granular kidney ought to have arterial tension which is above normal. The patient would be better without granular kidney, but having granular kidney he is best with a moderately raised tension. From this pathological normal the tension may vary by way of excess or defect; it may be too high or too low. If too low it must be raised. This is the rationale of the use of digitalis, which, besides raising the tension, stimulates the heart and improves the circulation; but if the tension be now low, still more if it really be excessive, digitalis can do nothing but harm. Other drugs which may be used to raise the tension are adrenalin and ergot, supplemented by a more liberal diet and some stimulant. If the tension be excessive it must be lowered. With this object the diet may be reduced, all stimulants cut off, a purge given, and the skin made to act freely by baths and diaphoretics.

Of drugs, nitroglycerin is useful and may be given regularly in doses of from two to three minims two or three times daily, supplemented it may be by full doses of iodide of potassium. If it be desirable to increase the quantity of urine, caffeine or theobromine and its combinations, such as diuretin, are useful as having a stimulating effect upon the heart as well as on the kidney. Of all drugs for chronic renal disease the author thinks pilocarpine is the most useful, and is at a loss to understand the prejudice that seems to exist against it in some quarters. He has used it very largely and has never seen any disadvantage follow its adminstration—on the contrary, nothing but good. Apart from its general action many of the symptoms are distinctly controlled by it. Thus, headache and the exhausting restlessness so common in the latest stage of the disease may be relieved by pilocarpine more immediately and persistently than any other means, and even threatened uremia staved off. He considers it the most useful renal remedy of all, and generally gives it by the mouth two or three times a day in a dose of 1-6 of a grain of the nitrate. Sub cutem, 1-12 of a grain is enough to begin with. This produces nothing more than a gentle action of the skin. The profuse sweating or discharge from other parts of the body described is not produced by such doses, even when repeated two or three times a day, nor has the writer ever seen anything like collapse or fainting follow them.

The asthenia, anemia, and general failure of nutrition, as well as many of the symptoms that develop in the later stages, are often referred to chronic toxemia—*i.e.*, to a condition due to the toxic effect of some substance of which the kidneys ought to get rid but cannot. They bear so close a clinical resemblance to the conditions which arise

from the failure of some internal secretion as to suggest that the kidney has also an internal secretion. Moreover, these symptoms stand in direct relation with the amount of destruction in the kidney; they do not develop until the degeneration of the kidney is far advanced; and they bear a resemblance to the conditions which have been produced experimentally by the gradual removal of portions of the kidney in animals.

We have so far no actual proof that the kidney has an internal secretion, however much inclined we may be by other considerations to believe that it is so. But the connection between the thyroid gland and myxedema was not conclusively established until it was shown that the administration of the gland substance cured the disease. The relation between disease of the suprarenal gland and Addison's disease is clinically established, but so far the administration of the gland or its derivative, adrenalin, has not cured the condition. There is the same sort of relation established clinically between the symptoms of granular kidney and wasted kidneys. The administration of renal substance or extracts is in the experimental stage. *A priori* that treatment deserves serious trial. The results are so far inconclusive. For this there may be several reasons. Many of the cases come under notice too late for treatment of any kind whatever to do much good; the suitable cases would be those in the earlier stages. Then, again, stable renal extracts cannot as yet be prepared, and the extracts to be used must be made fresh as required. Many of the extracts have been made from the kidneys of sheep—that is, from those of vegetable feeders. It may be that the kidneys of omnivorous creatures like the pig would be more efficacious. As it is, using such preparations as the writer could make or get made, he thinks he has had some good results—results sufficiently encouraging to justify further experiments.

PSORIASIS AND ITS TREATMENT.

In an address on this subject published in the *British Medical Journal* of April 14, 1906, ABRAHAM says most of us, it must be admitted, still treat many diseases absolutely empirically, and we often cannot well do anything else. If we find that some particular method of treatment is successful in curing a disease, we are quite justified in employing that method, whether it bears upon this or that theory of pathogenesis, or whether it fits or does not fit in with the hitherto known pathological or etiological factors of the complaint. Our empiricism may be in one sense unscientific, but it is obvious that a rational treatment founded upon pathology and etiology can only be possible when the facts connected with these latter are quite certain. Now, as we have seen, we do not know the whole of the facts connected with the causation and true nature of psoriasis.

In olden times internal medication was practically the only method of treatment irrespective of taking the baths at the various well-known and fashionable watering-places. By degrees external medication came into vogue, and in Germany it was for long chiefly relied upon. We must admit that patients have been cured — or perhaps, what is not always quite the same thing, have lost their psoriasis while under the treatment (psoriasis, indeed, sometimes disappears spontaneously) — by taking internal medicines alone, as well as solely by bathing in medicated waters or by rubbing in ointments. We have to remember that a disease is not absolutely proved to be local or superficial because it disappears under purely local applications, or constitutional because it disappears under purely internal treatment. In the one case we may have absorption of the drug into the tissues and blood, so acting internally; and in the other the drug may reach the skin from within through the circulation, and then produce its effect.

It is not the intention of the author to enumerate the enormous number of medicines that have been used internally or externally for psoriasis. He alludes to very few, and more particularly to those which he has himself found useful in combating the disease, and to the methods of their application which he employs. If asked whether external applications or internal medicines were most efficacious, he asserts his reply would be undoubtedly the former. In his experience the eruption of psoriasis always disappears under tarry applications adequately used, and still more rapidly and certainly under chrysarobin, whether other medicines be given internally or not.

From what he has already stated, however, it will be gathered that he does believe that internal medication is often very useful in a great number of cases—that is, where there is the least suspicion of the uric acid diathesis, indigestion, debility, etc. In point of

fact, he always employs vigorous external treatment, while at the same time giving whatever internal medicine may be indicated.

He here states that he does not believe that there is any one drug administered internally which can rightly be regarded as a specific for psoriasis. He is quite aware that this is a very heterodox opinion, and he always advises students, when going up for examination, not to say anything to this effect to the examiner, for they would run great risk of being "ploughed" if they did not state that arsenic was the specific for psoriasis.

In 1893 the author ventured to express his doubts as to the efficacy of arsenic in this disease; he had seen many cases which had been under its influence for years without the slightest benefit, and he had also seen a great many which had been cured without its use. He then wrote: "I cannot help thinking that with regard to psoriasis this arsenic 'tradition,' like the tradition of a great many other drugs for other complaints, will sooner or later become obsolete." His subsequent experience has strengthened this opinion. It must, however, be admitted that a great many experienced physicians—and even dermatologists—still put faith in arsenic for psoriasis; but he thinks he is right in believing that an increasing number of those who have most to do with the disease agree with him in this matter. He does not deny that arsenic may occasionally appear to benefit a patient—for example, as a nerve tonic in cases which have a neurotic complication—or that, when greatly pushed, almost to the toxic effects, the eruption may sometimes temporarily disappear. A similar result is not infrequently observed during the existence of some intercurrent disease. He has more than once seen the skin get clear in a psoriasis case during an attack of gastritis, severe influenza, and other acute diseases. Anything, in fact, which profoundly alters the general nutrition of the system will at the same time affect the skin and its efflorescence, and the latter may vanish for the time. Under these circumstances, however, it very soon returns, in the writer's experience, when the superimposed illness is over.

Another substance which with less doubt influences the nutrition of the skin, and sometimes has a beneficial effect on psoriasis, is thyroid gland. When Dr. Byrom Bramwell published his important observations on this subject, and reported his successful results in three cases, the author at once made trial of the new remedy, and within six months had sixty-five cases under it. Only in a few of them did he note marked improvement; in considerably more than half the cases the results were either negative or the eruption actually increased while the thyroid was being administered. He very rarely orders it now, and only in cases which "hang fire" and are under close observation as in-patients at the hospital.

In the author's experience, magnesium sulphate, with a little iron and some bitter tonic, is often useful in regulating the bowels, promoting excretion, and improving the general nutrition, and in every case in which there is the least suspicion of an excess of uric acid in the system he gives salicylates, salicin, and alkalies. Dr. Radcliffe Crocker some years ago published some good results in psoriasis from the exhibition of salicylates and salicin in large doses. He finds them useful, especially under the circumstances mentioned.

As regards external remedies, his usual plan is to order a thorough soaking for at least ten minutes in a weak tar bath every day, to be followed by a copious inunction with some tarry ointment. He does not think it matters much what tarry substance one uses. He finds creolin from gas tar convenient and as good as any. He generally orders one drachm to six gallons of water in the bath, and his favorite ointment, especially for indurated patches on the extensor surfaces, contains:

℞ Creolin, ʒj to ʒij;
Acidi salicyl., gr. x;
Hydrarg. ammoniati, gr. x;
Lanolini,
Vaselini, āā ʒj.

The writer sometimes adds soft soap ʒ ij to ʒ iij to this and occasionally pure precipitated sulphur gr. xv.

It need hardly be said that the proportion of the ingredients must be varied, diminished, or increased, or some of them left out, in accordance with the special circumstances of the case, the idiosyncrasies of the patient, the parts affected, etc. Most cases yield to this treatment in a few weeks if it is copiously and thoroughly applied, but when progress is slow the writer adds chrysarobin gr. x to xx to the above ointment—that is, in in-patients, or where the case can be adequately watched. In out-patients and in private practice the writer frequently rubs benzine into obstinate patches with a stiff brush, the parts treated to be afterward painted over with flexible

collodion. He prefers this application to the usual chrysarobin in traumatism. For psoriasis of the scalp his routine ointment, for a few weeks, is:

℞ Hydrarg. ammoniati, ʒj;
Saponis mollis,
Vaselini, āā ʒj;

with the addition sometimes of resorcin or some tarry oil.

THE TREATMENT OF TENIA.

FOWLER makes the following report in the *British Medical Journal* of April 14, 1906, stating that the method of treatment here described has been followed for some years in the author's wards at the Middlesex Hospital, and although it differs only in details from that generally recommended it may be worth recording, as the results appear to be somewhat more favorable than are usually obtained.

The routine method in vogue in the out-patient department years ago was only rarely successful, but since it has become the custom to admit these cases to the wards, failure has been as rare as success was formerly. The method is as follows:

1. The patient is kept in bed.

2. For two or three, or in some cases four, days the patient is given a diet consisting of beef tea, 2 pints; two rusks; and port wine, 4 ounces. During the same period the patient takes tablets of cascara sagrada (gr. ij) three times daily. On the fourth day (usually) at 5 A.M. senna; at 9 A.M. a capsule containing 15 minims of the extract of male-fern; at 9.15 ditto; at 9.30 ditto; at 9.45 ditto; and at 11 A.M. senna. If by 1 P.M. the worm has not been passed and the head found, a second course of treatment with male-fern at intervals of fifteen minutes is begun; to be followed in an hour by a purgative draught. If the head is not found a third course of treatment is prescribed.

It is rarely advisable to continue the treatment beyond this without an interval of a day, as the patient may be somewhat exhausted.

In one case of the author's the head was not found until the treatment had been repeated four times, and in another the treatment was repeated six times. In the latter case, although the head was not found, the patient was cured, as he had not passed any segments when heard from seventeen weeks later.

In eight cases the treatment was as described above, but, in addition, a single dose of one drachm of extract of male-fern was given after the four doses at fifteen minutes' interval. As this was subsequently found to be unnecessary, it was omitted.

Having regard to the prolonged duration of the affection in many of the cases and to the frequent failures of previous attempts to dislodge the parasite, it may be fairly claimed for this method that it presents advantages over that which is apparently still generally adopted.

The chief points of difference are:

1. Complete rest in bed. It is not advisable for patients taking such an inadequate diet as is necessary to continue at their ordinary occupation.

2. Prolonged period of restricted diet. The usual instructions given to out-patients were to eat no solid food after midday and to take the draught prescribed on the following morning; this to be followed by a purgative an hour later. The following, which is taken from a well-known text-book of therapeutics, shows that this method is still approved:

The oil (male-fern) should be given in the morning on an empty stomach, the bowels having previously been evacuated. At noon an ordinary meal may be taken, and in the evening a brisk purge.

To insure that the bowels shall be as nearly empty as possible when the vermicide is administered, it is necessary that a diet which leaves little solid residue shall have been taken for some days, and that for the same period a laxative, such as cascara sagrada, which is said to act most efficaciously when given in small and repeated doses, should be used. The duration of the period of restricted diet depends upon the strength of the patient.

3. The method of administering the vermicide. If a single dose is given, it is conceivable that it may pass rapidly over the worm and fail to destroy it, whereas it is possible that the prolonged action of repeated doses is more effective The nauseous taste of the drug is avoided by the use of capsules.

4. The search for the head of the worm. As the worm usually breaks at a distance of about 1½ inches from the head, and as the portion left is an exceedingly slender filament, a very careful search is necessary to find it. To facilitate this, the pan into which the motion is passed should be covered with black crape, as against this the fine white filament terminating in the head is more readily seen.

It was observed that the head of the worm was found in seventeen out of twenty-two

cases, and that a cure was certainly effected in two out of the remaining five cases, 86 per cent in all.

The other three patients have changed their address and have been lost sight of, but as they were instructed to report themselves if not cured and have not done so, it is probable that the treatment was effective in those cases also.

There appears to be a belief that oil of male-fern is less successful against *Tænia mediocanellata* than against *Tænia solium* and the *Bothriocephalus latus*. This series of cases, so far as it has any bearing on the point, does not support such a view. None of the very various toxic symptoms described as having occasionally followed the administration of this drug were observed.

SHERRY AND OTHER FORMS OF ALCOHOL IN ILLNESSES CHRONIC AND ACUTE.

In a letter sent to the *Lancet* of April 14, 1906, the writer states that when he first went to Spain some seven years ago he had as full a horror of sherry as any other equally ignorant Englishman. One of the first things he noticed on meeting in consultation his Spanish brothers was the universality with which they all ordered sherry instead of brandy. This is the more striking because they make very good brandy in Spain, and French brandy is quite as accessible in Spain as in England. This writer finds that sherry is generally very much better borne by the very ill patient than brandy (a light sherry called "Fino"); one misses the flushing of the face, the hardness of the pulse, which brandy produces in doses of one to three ounces in twenty-four hours, yet in that time one will have been able to give from six to eight ounces of a light sherry, containing an equal amount of the higher ethers, with quite enough stimulant for one's purpose, and far more digestible. In convalescence or in more chronic troubles he prefers a heavy sherry, an "Oloroso" or an "Amontillado," and this latter always after meals. The light sherry has this great advantage over brandy—one that must appeal to every gourmet—that on an empty stomach it is more palatable. Who could choose to drink brandy on the stomach condition which exists in illness?

The indications most commonly accepted for giving alcohol in acute illnesses are debility, heart failure, anorexia, high fever, etc. Pneumonia, delirium tremens, and typhoid fever are types of acute diseases in which one might desire to exhibit alcohol.

The author has treated pneumonia now for two years with sherry when he wanted to give alcohol. As soon as he sees that fever is beginning to overtax the strength, generally about the third or fourth day, he gives one glass (sherry glass) of sherry every four hours. He also regards a falling off in taking of food, of which he prefers milk or whey, as an indication to begin alcohol; in this case he orders a glass every four hours, or the same amount in food. The sherry he uses in such cases is a light sherry—*e.g.*, Nectar of Gonzalez, or a Manzanilla, such as Divina Pastora, for poorer patients. He increases this if there is any sign of heart failure or increasing debility up to a wineglassful every hour, or in one or two teaspoonful doses every ten minutes if necessary. The effects of such wines (and he only refers to them as types) are to steady the pulse, to clear the head, to clean the mouth, and perhaps for this reason to help the appetite, and sometimes to open the bowels; they also act as a diuretic. The patient, whether English, French, or Spanish, nearly always prefers sherry to brandy if he be allowed to try both. When the crisis is passed and the lower level established, he gives a heavier wine, such as Trafalgar, a glass every three or four hours, and keeps this up in diminishing quantities—*i.e.*, four-hourly, six-hourly, three times a day, and twice a day after eating—until the patient is well. The only medicines he has used for three years in the treatment of pneumonia have been a little Dover's powder for the hard, painful cough, and later a little ammonium carbonate when the cough is already free, the latter nearly always as a placebo. The last case which he treated on champagne, digitalis, etc., certainly came through a very serious illness, but remained with a hard, dry cough which he could only get rid of by depriving the patient of all wines. He had a glass of champagne every two hours, and for a short period (about twelve hours) every hour; all the time he was taking this he was very flushed and had much headache, but his pulse had sunk to 49 and his nose and lips were blue. Parenthetically the author remarks that acetic acid in wines gives rise to stomachic cough; a man with a hard, dry, useless cough who is drinking a cheap claret will frequently lose it if given an old Burgundy instead. The writer has occasionally as a last resource gone back to brandy. In

one case the patient when first seen had a temperature of 41° C. (or 106° F.) and a pulse of 130, and in despair he advised her medical attendant to try brandy. One would scarcely expect betterment in such a case, but she appeared more uncomfortable and the delirium was more marked after the change of alcohol.

In those cases of delirium tremens in which it is desirable not to do away with alcohol all at once, he has found sherry very useful. A mixture containing digitalis, bromides, or chloral, with a dessertspoonful of a heavy sherry sweetened by a little glycerin, prevents first the collapse, and secondly helps to alleviate the troublesome craving, on which, as regards fever, appetite, etc., it acts as in pneumonia. In typhoid fever the author has had too little direct experience to be able to say much, most of the cases having been seen in consultation, but he finds the same idea is followed. The Spanish medical man, however, rarely uses the heavier wines, nearly always keeping throughout to the lighter kinds. In chronic troubles—*e.g.*, that languidness which one finds in the business man, anorexia, headache, and anemia (though in this he thinks a Burgundy better) —he has found a light sherry very useful, one glass at lunch and one at dinner. If the luncheon glass causes heaviness, which it will in people unaccustomed to alcohol, then two glasses may be taken at dinner-time, one with the soup and one with the fish. Far from producing biliousness the patient finds himself quite clear and with a delightful feeling of peace toward all men the next morning; and the greatest test of the goodness of any wine is, when drunk with discretion, the feeling better for it the next morning. The writer has often found the opposite with port, even with discretion, the patient being fractious the next day.

He has gone so far as to give sherry in cases of dyspepsia in which he suspected defective secretion and motility, and has met with some, though not unvaried, success; the modern love for whisky has either destroyed the palate or has led to an inordinate love of cheapness. The stomach, however, gains in tone and the mouth becomes cleaner tasting, and the bowels are frequently opened without other aid. For children sherry is undoubtedly the best alcohol; it can be sweetened, and it does not so easily intoxicate as brandy; teaspoonful and half-teaspoonful doses, hourly or half-hourly, can be stood; from 15 to 30 minims hourly or two-hourly is a useful dose. In Jerez, where sherry is drunk in large quantities, and, in fact, all throughout the south of Spain, cirrhosis and gout are practically unknown.

FRACTURES—UNION HASTENED BY CONGESTION HYPEREMIA.

The rubber band around the limb, proposed by Bier to check inflammation, has been used by DEUTSCHLANDER (*Centralblatt für Chirurgie*, No. 12, 1905) to aid the union of fractures in unfavorable cases. The first case in which he used it was one of infantile osteomalacia, to hasten the union of fractures made purposely to correct angular deformity. The results were so good that the method was used in nine cases of fracture near joints with excellent results. Pain was lessened, the formation of callus hastened, and in no case was there interference with the mobility of the neighboring joint.

He intends hereafter to use the band in all cases of fracture in the limbs, applying it six to eight hours a day, with a pause at noon. This is rather longer treatment than is indicated in inflammatory processes.

VARICOSE VEINS TREATED BY X-RAYS.

COOK (*La Tribune Médicale*, March, 1906) treated a singularly aggravated case of varicose veins of the leg by eight exposures of the *x*-ray, with the result that the circumference of the limb was reduced two inches. The tumefactions entirely disappeared, the veins were contracted, and the clots, before distinctly visible and palpable, underwent dissolution and absorption.

CIRCUMSCRIBED ABSCESS OF BONE.

THOMSON (*Edinburgh Medical Journal*, April, 1906) notes that circumscribed abscess of the bone shows a preceding history of osteomyelitis in childhood or youth in over 84 per cent of cases, usually, but not always, of an acute variety, attended with suppuration and the formation of sinuses. In some instances the original osteomyelitis affected a different bone from that which subsequently became the seat of the so-called Brodie's abscess.

It is obvious that many people pass through an attack of osteomyelitis in youth and retain dormant foci of infection in the marrow of the long bones which never come to fruition. The latent period of circum-

scribed abscesses has ranged from one to fifty-seven years. In mild cases it averages eleven years, in those attended with suppuration and sinuses fifteen years, in those characterized by suppuration necrosis eighteen years. Circumscribed abscess is met with in those parts of the skeleton which are most apt to suffer from osteomyelitis. The upper and lower end of the tibia are most frequently unaffected. Thereafter the lower end of the femur, the lower end of the humerus, and the radius and ulna. The occurrence of an abscess in the middle portion of the shaft of the long bone is exceptional. It is stated that the abscess is near the axis of the bone in the region of the ossifying junction, where the marrow of the spongy bone is most successful in encapsulating the infective agents. When the bone has attained maturity and the epiphysial cartilage has disappeared, an increase in the size of the abscess is more likely to take place in the direction of the articular surface than toward the medullary canal, which is usually shut off by dense bone. The latent focus may become active as the result of constitutional depression and exposure to cold or wet, or in consequence of traumatism. Pain is the dominant symptom, at first rheumatic in character, later distinctly boring, worse at night, and aggravated by standing or walking if the abscess be in the tibia. There are often intermissions in the pain which may last for weeks or months. There is local tenderness and interference with the function of the limb. Tenderness is most marked on percussion or deep pressure. In advanced cases there is circumscribed swelling of the shaft of the bone. The adjacent joint is frequently involved. Intermittent hydrops is particularly characteristic. In some cases there is sudden onset of arthritis due to perforation through the articular cartilage into the joint. The circumscribed abscesses of the lower end of the femur are more likely to perforate the joint than those in the upper end of the tibia.

Pyrexia is not always present. Staphylococcus aureus is the common infecting agent. It has been found when the abscess developed as long as fifty years after the original osteomyelitis.

Differential diagnosis will depend to a very great extent upon the previous history of an attack of osteomyelitis and the evidence afforded by the *x* rays, though this is often misleading. The treatment consists in immediate exploration. This may require drilling of the bone in a number of different directions. The pus and dead bone having been cleared out, the cavity is scraped, disinfected, and packed. The packing is changed at intervals until healing takes place from the bottom. Long confinement to bed is not desirable.

VACCINATION IN SURGERY.

GRAY (*Lancet*, April 21, 1906) states that by vaccination treatment he means the injection into the patient of quantities of dead organism which produces the disease, thereby increasing the resisting power of the individual against the action of the living organism. He based his surgical trial of this method upon Wright's admirable work, holding in mind that the immediate effect of such a vaccination is depressant, and that this negative phase, which lasts for a variable time according to the amount of virulence of the vaccine, is followed by a period of increased resistance or a positive phase. By repetition of the doses at suitable intervals a cumulative positive phase is obtained. If, however, the second injection is made during the negative phase of the first, this phase is augmented and thus harm is done. Hence an estimation of the opsonic power of the patient's serum must be regularly made to determine the interval which should be allowed to elapse between the injections.

Gray believes that it is not needful to make these opsonic calculations in each individual, but that the dosage can be regulated by the result of previous experience based on such calculations in a number of individuals.

Tuberculous disease, he states, has provided the most frequent tests for the efficacy of vaccine treatment. He has employed Koch's tuberculin R, and notes that in cases of tuberculous glands, if these are simply enlarged—*i.e.*, not broken down and caseating or calcified—they disappear in every case after a very few injections of tuberculin R, and that in quite early cases no trace of enlargement remains after even two or three injections. When he gets no improvement after six or eight weeks he suspects caseating and operates. Even periadenitis usually cleared up. Broken-down, fluctuating glands were never cured by the tuberculin R injections, though the inflammatory symptoms became less prominent. In tuberculous joint affections tuberculin R injections are most successful. One case of tuberculous peritonitis was markedly benefited; also psoas

abscess after opening and evacuation seemed to run a more favorable course because of the injections. Genito-urinary tuberculosis did not seem to be helped. Staphylococcus and streptococcus vaccines were found useful in the treatment of ulcerated cancers, and were given in three cases as a means of preventing pneumonia after extensive resections of the jaw and throat.

As to the quantity of the vaccine, according to Professor Wright staphylococcus is given from 500,000,000 to 1,000,000,000, streptococcus from 100,000,000 to 250,000,000, gonococcus from 50,000,000 to 250,000,000, colon bacillus from 100,000,000 to 1,000,000,000, and tuberculin R from 1-2400 to 1-600 of a milligramme. The dose of tuberculin R has usually been repeated at intervals of ten days.

On general principles the dosage should fall just short of producing a definite local and general reaction.

In this relation Raw in the same number of the *Lancet* writes on the rectal administration of antitoxin serum and reports two cases of recovery. He believes that thus administered it exhibits greater efficacy than when injected under the skin.

SURGICAL TREATMENT OF CARCINOMA OF THE RECTUM.

JONAS (*International Medical Journal*, vol. xiii, No. 4, 1906) writing on this topic holds that in the vast majority of cases it is a dangerous undertaking to try to save the sphincter. He believes that the proximal end of the cancer extends far beyond the obviously diseased tissue. Morever, the functional result even when this method of procedure is apparently successful is far from the patient's expectation. He also advises that complete colostomy be made about two weeks before operation. Thorough exploration of the pelvis reveals the extent and mobility of the growth and the condition of the lymphatics. The general health of the patient usually suffering from autointoxication and sepsis improves. The terminal portion of the gut if left open can be cleansed by irrigation; soiling at the site of operation by fecal discharge is prevented, and a much better chance of primary union is given, in case the sphincter is saved and the divided ends of the gut sutured.

The second operation is designed for the purpose of removing the rectum with the surrounding tissue and all lymphatics, either by a combined abdomino-perineal, abdomino-sacral, or abdomino-vaginal operation, starting in every case from the abdomen. In regard to the lymph vessels the combined operation is the most thorough since it affords a better chance for their removal. Jonas lays greatest stress so far as radical cure of cancer of the rectum is concerned upon early diagnosis.

THE MEASUREMENT OF THE CAPACITY OF THE RENAL PELVIS.

LUYS (*Annales des Maladies des Organes Génito-Urinaires*, vol. vi, 1906) passes a ureteral calculus to the pelvis of the kidney. When the urine which has been there contained has escaped by means of a graduated syringe which accurately fits the outer end of the catheter he injects boric acid until the patient begins to feel pain in the kidney. This usually occurs quite suddenly, and when 2 to 5 cubic centimeters of the solution has been injected. The quantity necessary to produce pain is an index of the renal capacity. This measurement may be of extreme value from a diagnostic and operative standpoint, since it affords a means of determining whether or not a greatly enlarged kidney exhibits this increase of size from dilatation at the pelvis or from overgrowth of the renal parenchyma.

X-RAYS ACROSS WATER AND AIR.

WITTEK (*Münchener medicinische Wochenschrift*, No. 12, 1905) replies to Lichtenstein, who claims that *x*-rays of hollow organs are only prevented by their water content, and may be just as good in collapsed viscera as in those filled with air. Wittek showed experimentally that a metal catheter in the bladder showed more clearly when the viscus was inflated with air than when it was empty, and claims that a layer of air between an opaque object and the Roentgen tube makes the former more visible.

POSTOPERATIVE PHLEBITIS.

SCHENCK (*New York Medical Journal*, March 31, 1906) writing upon this obscure subject notes that the onset is between the sixth and twenty-second day after operation. It is usually about the end of the second week. There is pain of a dull, throbbing character, tenderness along the veins, and in some cases enlarged glands and edema. Most of the cases occur after hysteromyomectomy and myomectomy. Schenck be-

lieves that the rational view to adopt in regard to the etiology is that the thrombophlebitis is caused by an infection occurring in a place of lessened resistance, which has possibly been encouraged by mechanical factors. As to the prognosis, all patients have symptoms for a period varying from two to four months.

If the symptoms persist longer than six months (by which time the collateral circulation is probably as completely established as it ever will be) there is small chance that they will ever disappear.

In about 65 per cent of all cases there is never complete freedom from attacks of pain and swelling.

SCOPOLAMINE-MORPHINE-CHLOROFORM ANESTHESIA.

WHITACRE (*New York Medical Journal*, March 31, 1906) has adopted this method of anesthesia in forty cases. He lingered under the impression that scopolamine was a practically harmless drug. His conclusions are to the effect that scopolamine morphine narcosis is not devoid of danger. This method is neither justifiable nor practicable as a means of obtaining surgical narcosis, but a single dose two hours before operation lessens the discomfort attendant upon operative procedure to a high degree, and may attain a definite position in surgical practice. He notes that four deaths have occurred in 2400 cases, and that these were so definitely related to the use of this form of narcosis that they may be called scopolamine deaths, since they occurred with a type-picture of alkaloid poisoning. Moreover, fatty degeneration of the liver and kidney has been produced by the use of scopolamine alone and by scopolamine in combination with morphine in animals.

LUMBAR ANESTHESIA COMBINED WITH SCOPOLAMINE-MORPHINE.

To avoid the anxiety resulting from the patients being conscious during lumbar anesthesia PENKERT (*Münchener medicinische Wochenschrift*, No. 14, 1906) gives all such persons an injection of morphine gr. 1-6, scopolamine gr. 1-200, three hours before the operation, repeating it an hour later. This injection puts the patients into a profound slumber, from which they are not awakened by the insertion of the needle in the back or by the operation. Of course the pain would waken them if the lumbar anesthesia was not performed. Forty operations performed with this method were perfectly satisfactory in every respect. There were almost no disagreeable after-sensations. Sixteen of the operations were laparotomies, mainly salpingectomy.

INTERMITTENT DISTENTION OF THE GALL-BLADDER.

The peculiar symptom of this condition, according to VILLARD and COTTE (*Revue de Chirurgie*, Nos. 1 and 2, 1906), is the extreme severity of the paroxysms of pain accompanied by swelling in the hepatic region. They admit three causes—calculus, kinking of the duct, and paralysis of the gall-bladder. The usual cause is a ball-valve calculus in the cystic duct. Kinking of the duct is due to abnormal mobility of the gall-bladder, liver, or kidney. It is never due to repeated inflammatory attacks. Paralysis of the gall-bladder is extremely rare.

The attacks of pain and swelling come on at constantly shorter intervals without appreciable cause, and after lasting several hours pass off spontaneously or under the use of morphine. They resemble closely hepatic colic, and may be followed by slight jaundice. In some cases there may be a sudden flow of urine at the end, giving a resemblance to hydronephrosis. The general health of the patient is generally much affected.

The only curative treatment is operation, which should be a cholecystostomy if the condition is due to calculus, and a fixation of the organ or organs if due to splanchnoptosis.

INTESTINAL PERFORATION IN TYPHOID FEVER.

COURTNEY (*Journal of the Minnesota State Medical Association and the Northwestern Lancet*, April 1, 1906) reports eleven cases of typhoid perforation. Five of these were operated on, with one recovery. The remaining six, in which no surgical intervention was attempted, all perished. He notes that when there is a case of typhoid fever with typical symptoms pathognomonic of the disease and a possible Widal reaction, which presents after the first week pain, rigidity, and tenderness in the cecal region, supplemented by other less valuable symptoms, it will be not only expectant but reasonable to diagnose intestinal perforation.

As to the anesthetic, ether is preferred. The incision of choice is that through the

right rectus muscle, opposite the cecal region. After cleansing the peritoneum tubular drainage is employed to the bottom of the pelvis.

Fowler's position is commended—*i.e.*, semi-upright—to allow of effusion of fluid into the pelvis. Attention is called to the fact that the typhoid ulceration is sometimes found in the esophagus and may be followed by stricture.

TREATMENT OF X-RAY BURN.

MEWBORN (*St. Louis Medical Review*, April 14, 1906) states that the application which gave the greatest relief from a severe *x*-ray burn is the following:

℞ Plumbi acetat., 125;
Aquæ, 1500.
Solve et adde
Aluminis sulph., 85;
Sod. sulph., 15;
Aquæ, 2500.

APPENDICITIS—DETECTION OF MILD CASES.

Appendicitis simplex without involvement of the serosa and A. destructiva with peritonitis are the only clinical varieties recognized by KRECKE (*Münchener medicinische Wochenschrift*, No. 15, 1906), who believes that only the latter should be operated on. A. destructiva can be assumed if there is any tendency to contraction of the abdominal muscles or hardness even of very small extent. In the absence of muscular tension, if the pulse is 100 or over or the respiration is mainly costal, the severe form may be assumed and immediate operation should be performed. In the absence of all three symptoms we should apply ice-bags and wait. The temperature, pain, and leucocytosis are valueless as guides in the absence of other symptoms.

TENDERNESS OF THE HEEL—FRACTURE OF THE OS CALCIS.

Two cases with tenderness of the heel on walking or pressure were recently studied by EBBINGHAUS (*Centralblatt für Chirurgie*, No. 15, 1906) by means of *x*-rays. In both cases a spur of bone was seen extending downward and forward from the tubercle of the os calcis. Pressure over this spur elicited the pain. Questioning developed the history of stepping from a height and landing on the heel in each case. In one case Ebbinghaus cut down on the spur and removed it, with complete relief. The other patient refused operation, and an apparatus was designed to fit in the shoe and protect the sensitive spot over the spur from pressure, permitting walking without pain. Reproductions of the *x*-rays are shown.

PARATHYROID EXTRACT TO RELIEVE ECLAMPSIA.

In a long article on organotherapy by HAGER (*Münchener medicinische Wochenschrift*, No. 15, 1906) the only new fact is the work of Vassale, of Genoa, on extracts of the parathyroid glands. Vassale claims that the active principle of these glands relieves eclampsia as certainly as thyroid relieves myxedema. The principle was also used with good effect in cases of tetany in children.

TREATMENT OF GENERAL PERITONITIS BY MURPHY'S METHOD.

GIBBON (*New York Medical Journal*, April 7, 1906) speaks of the various methods of treating peritonitis and gives special reference to the method of Murphy, which he used in eight cases. The treatment consists in making a small opening in the abdomen, doing such operation at the point of origin of the peritonitis as is required, the introduction of a large drainage-tube into the pelvis, placing the patient in a sitting posture of 35 to 40 degrees, and the administration of a salt solution every two hours per rectum. An important feature of the treatment is to avoid handling the intestines or peritoneum more than is absolutely necessary. It is remarkable how much salt solution is absorbed and how it increases elimination by the kidneys. As much as eighteen pints of water may be administered by the rectum in twenty-four hours and all retained; this is only accomplished, however, by elevating the douche bag but eighteen inches above the bed and allowing the solution to flow into the bowel very slowly. The rectal tube can be kept in twenty-four to forty-eight hours. Water should also be administered by the mouth. The eight cases reported by Gibbon were such as came to his notice in regular order, he not having refused to operate in any case of peritonitis because of its far-advanced condition. There were three deaths—one occurred in typhoid perforation, where operation was done thirty hours after; the other two were cases of peritonitis due to perforation. While Murphy uses a drainage-tube, Gibbon has used gauze in all his cases

and likes it much better. It is very important after operation to keep the patient continuously in the sitting posture.

APPENDICITIS COMPLICATING PREGNANCY AND PARTURITION.

DAVIS (*American Journal of Obstetrics*, March, 1906) describes in detail six cases of appendicitis complicating pregnancy and parturition which he has selected from his experience as typical of various phases of the subject. He says that appendicitis may happen at any time during pregnancy, and may be found secondary. In many cases the mild vomiting may be taken for the vomiting of pregnancy. The disease runs a rapid course, and suppuration develops in the majority of cases. If pus forms it should be let out at the earliest possible moment, and it should be remembered that the uterus and Fallopian tubes usually form one of the walls of the abscess. The tissues should be disturbed as little as possible to avoid abortion or premature labor, which in these cases always adds greatly to the gravity of the situation. The author believes that appendicitis is a serious complication of pregnancy, and that adhesions following appendicitis may bring discomfort and danger to the patient who becomes pregnant after she has recovered from the disease of the appendix. In view of the serious consequences which follow appendicitis in pregnancy the appendix should be removed in pregnant women as soon as the disease can be diagnosed. As it is impossible to differentiate between inflammation of the right Fallopian tube and ovary and inflammation of the appendix in these cases, operation should be done without waiting to make a positive differential diagnosis.

In the same number of the *American Journal of Obstetrics* MYER has collected from the literature 143 cases of appendicitis during pregnancy, labor, and the puerperium, and from these cases draws conclusions as follows:

Of the 143 cases collected, 52 occurred during pregnancy and were not operated; 69 cases were operated during pregnancy; while 22, both operative and non-operative, occurred during the puerperium.

Pregnancy does not predispose to the development of an appendicitis.

If appendicitis has previously existed, there is usually a recurrence of the attack during pregnancy, and it runs a more grave course, as evidenced by perforation and abscess in 50 per cent.

The uterus, adnexa, and uterine contents may readily become infected during pregnancy from an appendiceal abscess.

The same surgical principles are applicable where the complication of pregnancy exists as in uncomplicated cases.

Operation itself does not disturb pregnancy. No case of operated chronic recurrent appendicitis was disturbed.

Where the complication of abscess existed, 57 per cent aborted, regardless of the method of treatment.

Every care should be employed not to disturb the pregnant uterus during operation, for our prognosis improves with the amount of time which elapses between the operation and the abortion or labor.

Abortion or labor following within twenty-four and forty-eight hours after operation gives a maternal mortality of 55 per cent, an increase of 23 per cent over the general mortality of this class.

Maternal mortality: First class, 14 per cent; second class, 32 per cent; third class, 14 per cent; giving a general mortality of 28 per cent.

Fetal mortality: First class, 20 per cent; second class, 55 per cent; giving a general mortality of 40 per cent.

ETHER ANESTHESIA BY THE DROP METHOD.

SHIPP (*Lancet-Clinic*, April 14, 1906) states that during the last fourteen months he has administered ether by the drop method. The average time of inducing surgical anesthesia was six minutes and ten seconds. The time varied from forty seconds to twelve minutes. Vomiting did not occur in a single case. In 65 per cent of the cases there was no struggling or choking; in the remaining 35 per cent excitement and choking was of a mild degree. In only a very few cases has the assistant been required to restrain the patient during administration. No cases required stimulation because of the anesthetic. No operation has been delayed on account of the condition of the patient. Forty-eight per cent of the series had nausea or vomiting following etherization. The method of administration is very simple. An Esmarch chloroform mask is covered with six or eight thicknesses of gauze, the mask is placed over the patient's nose and mouth, and the ether dropped thereon. The patient is instructed to breathe slowly and deeply. After five or six inhalations the face becomes flushed.

The ether is then poured freely on the mask, and the gauze is kept saturated until the patient is anesthetized. After surgical anesthesia is produced little ether is needed to maintain this condition.

INDICATIONS AND CONTRAINDICATIONS FOR CONGESTION.

The treatment of acute inflammation by passive congestion is discussed by LEAR (*Münchener medicinische Wochenschrift*, No. 14, 1906) from the theoretical and pathological as well as from the practical and therapeutic standpoint.

1. Resorption in the congested area is decreased during congestion and increased after the band is removed. The general organism is thus temporarily shut off from the conflict, and as the destruction of bacteria is increased the endotoxins collect and spread over the congested area. When the band is removed they are carried into the general circulation, and although weakened by dilution cause fever, and may be dangerous if the inflammation is severe and they are present in large amount.

2. The bactericidal substances of the blood are increased in the congested area, and the bacteria are thus reduced in number, but never entirely destroyed, as only fresh exudate has bactericidal power. The destruction of bacteria leads to the presence of large amounts of endotoxin which may cause an erysipelas-like redness of the skin of the congested part. This is not due to living bacteria, but may injure the cells so that they are more easily attacked. If egress by means of free incision is given to these toxic products there are never any bad results.

3. The destruction of leucocytes in the congested area gives rise to a large amount of ferments which may cause liquefaction of tissues and hasten markedly the separation of gangrenous and necrotic tissue. It may act as a poultice over an abscess, and this action should be prevented by incision before applying the band.

4. Transudation is much increased by the congestion and bacterial poisons are washed out of the cells into the circulation, and although diluted may, as before stated, do damage if not allowed to escape by incision. Wounds, especially when soiled, do well with congestion because the transudation causes a watery discharge which washes out all the pockets and does away with the necessity for gauze drains. The puncture incisions recommended by Bier for suppurative cases are not large enough, and incision should always be free enough to insure drainage. The method is of value in all acute inflammations of the limbs, but when infection is severe should be preceded by free incision.

BESTELMEYER contributes an article on the same subject in the same number. He also recommends free incision in suppurative and severe cases. Inflammation of the skin with the exception of erysipelas was favorably influenced. Bone disease was not affected.

TREATMENT BY BIER'S METHOD.

BAUMAN (*Cleveland Medical Journal*, April, 1906) reports a case of gonorrheal arthritis of the wrist, later spreading to both knees, which was very painful and growing worse, treated by Bier's method, with rapid improvement from the time of the institution of treatment. The patient returned to work in three days without any redness, tenderness, or pain on motion or pressure in the affected joints. Hyperemia was continued only one and a half days. The author finds this method very useful in the treatment of chronic articular rheumatism. The pain is usually very quickly relieved. One of the author's patients insisted on wearing a bandage continually because it relieved the pain. In arthritis deformans an improvement in the pain and usefulness of the joint can be obtained. A case of tenosynovitis had an ankle with a discharge cured at the end of four days' treatment.

CASE OF HEMO-PYO-PERICARDIUM — RECOVERY.

LEGGE (*Intercolonial Medical Journal*, Feb. 20, 1906) reports the case of a laborer who was admitted to the hospital suffering from a severe form of lobar pneumonia. Four days later he developed pericarditis with effusion. No fluid was obtained by insertion of a needle into the pericardial sac in the left fourth interspace, one inch from the sternum. Therefore the pericardium was opened by removing part of the fifth left cartilage, and a large quantity of fluid and clotted blood was obtained. The general condition improved immediately. The pericardium was sewed to the skin and a gauze drain left in two days. The improvement was only temporary, and two weeks later the patient was in very poor condition. The pericardial sac was then reopened through the original

wound, and about one and a half pints of thin, odorless pus was removed, and the cavity drained with rubber tubing. Irrigation was practiced once daily with saline, then twice daily with boracic, and the patient continued to improve. Drainage was kept up for about five weeks. Two months after the operation the patient was discharged to the out-patient department with adherent pericardium and signs of slight consolidation at the right apex. This later disappeared, and the patient then complained of nothing but some shortness of breath on exertion.

OBSTRUCTION OF COMMON BILE-DUCT.

TUFFIER (*Bull. et Mém. de la Soc. de Chir. de Paris*, No. 36, 1905) points out that the diagnosis of the nature of obstruction of the common bile-duct is often difficult, not only before but also during and after direct operation. In the first instance it may be doubtful whether the patient be affected with lithiasis or organic obstruction of the duct. Progressive and persistent jaundice may be regarded as an indication of permanent organic obstruction, whilst emaciation, on the other hand, has no symptomatic value. The determination of coexistence of pancreatic with choledochal obstruction would be a valuable aid in diagnosing malignant disease, but unfortunately in regard to the former neither pathological nor clinical investigation will authorize the surgeon to form any sure conclusions. The chief diagnostic difficulty during an operation consists in deciding, not between lithiasis and cancer, but between the latter and chronic pancreatitis. The difficulty in determining the presence or absence of an infraduodenal calculous impaction in the common duct may, it is stated, be overcome either by a cautious exploration of the indurated tissues at the seat of the obstruction, or, if this be found risky, by opening the duct above the pancreas and passing through the orifice a probe as far as the obstructing agent. Another difficulty that may not be overcome by operative exposure of the supposed seat of obstruction is that of distinguishing the presence of calculi in the liver.

The author holds that it is impossible during an operation to decide between cancer of the head of the pancreas and the condition known as pancreatitis, the difficulty in this respect being much increased by the fact that these pathological conditions are often associated. The seemingly paradoxical assertion that uncertainty of diagnosis may persist after an operation is illustrated by the clinical report of a man who, two years after an apparently successful cholecystenterostomy for choledochal obstruction, diagnosed as due to simple chronic pancreatitis, proved to be the subject of epithelioma of the gland which had spread along the cicatrix to the surface of the abdominal wall.

In discussing the surgical treatment of calculous obstruction of the common duct, Tuffier holds that in cases in which the obstacle is situated near the duodenum the best and surest plan is to endeavor to remove this obstacle, and with this aim, if incision of the duct does not enable the surgeon to carry out extraction, he should, before resorting to duodenostomy, make an effort to break up the impacted stone. Choledochoenterostomy is indicated when the affected region, including the gall-bladder, has been more or less modified by chronic inflammation. The difficulties likely to occur in this operation are friability of the coats of the common duct, and traction of the intestine on this canal. In cases in which there is chronic inflammation, the question of the situation of the opening, whether it be duodenal, jejunal, or gastric, is one of little importance, it being especially necessary to find a portion of the gastrointestinal canal that is simple and capable of being readily applied to the duct. If the intestinal wall be indurated, sclerosed, and the seat of chronic inflammation, the operation, it is held, will inevitably fail. The author holds that whenever it is possible the surgeon should establish an anastomosis between the gall-bladder and a healthy portion of intestine. If the bladder be found defective he should make a communication between the common duct and the intestine. The latter operation has been rendered a justifiable one by recent improvements in its technique.—*British Medical Journal*, April 7, 1906.

BIER'S METHOD OF TREATMENT OF ACUTE INFLAMMATION.

CATHCART (*Scottish Medical and Surgical Journal*, April, 1906) details at length the technique of this method which has been used by Bier since 1893 with excellent results. The method consists in placing a piece of rubber bandage above the site of the inflammation at a considerable distance from it, sufficiently tight to obstruct the venous return, while only slightly diminishing the arterial flow. The pressure in acute cases should be light, the pulse be-

low the bandage should be easily felt, and the limb should be warm. An important test of the proper degree of tightness is the relief of pain. It sometimes requires a good deal of patience to secure the proper degree. The relief of pain is very striking. In some cases, principally gonorrheal, the pain may at first be increased and afterward diminished. After a few minutes the whole limb begins to swell, and the fiery red color, formerly limited to the site of inflammation, now extends up to the bandage. When the edema is well established serum escapes freely from any wound which may exist, and proper dressing will be required to take it up. In bad cases the congestion is kept up twenty-two out of twenty-four hours, and this may be diminished by degrees to from eight to ten hours out of the twenty-four. The position of the bandage should be changed after about ten hours. In the intervals of relaxation the limb should be raised so as to favor absorption of the effused lymph.

As a general rule the patient is soon eased of pain and feels brighter and better. The pulse improves and the temperature drops. The temperature may rise during the intervals when the bandage is relaxed. The more acute the inflammation the more easily the acute redness and edema are brought about. As the inflamed area improves by the use of the bandage, it responds less and less to constriction on the limb, until the reaction is almost as little as it would be in health. Any pus which may form should be let out, but the incision need not be so extensive as would have been necessary without passive congestion. If blisters appear it is evident that either the bandage is too tight or suppuration has occurred, which must be relieved. Great care must be exercised during the first day or two, for if the bandage is too slack it does no good, and if too tight it will do harm. After serious complications have arisen the cases are more difficult to treat, and the results, which are not likely to be satisfactory at the best, may be put down to the passive congestion method and not to the damage done before it was begun. One not familiar with the method and convinced of its value should not employ it in dangerous cases. In general practice Bier advises that this treatment be employed only by medical men who have had experience in surgery, and by them only in patients whom they are able to keep under close observation. In tuberculosis congestion is kept up for one or two hours daily, and cyanosis but not edema results. In acute inflammation the congestion is prolonged for the greater part of twenty-four hours, when the limb becomes fiery red in color and very edematous.

Cathcart abstracts one out of each of Bier's seven groups to illustrate the success of the method in Bier's hands.

Cathcart also reports a case of acute suppurative inflammation of the little finger and forearm, a case of cellulitis of the hand and forearm, a case of subacute inflammation and ulceration of the foot, a case of gonorrheal arthritis of the knee, and a gumma of the tibia, treated by him at the Royal Infirmary by Bier's method, with most satisfactory results. The author believes that as contrasted with other measures passive congestion is immensely superior. It cures the early stages of acute inflammation without allowing suppuration to develop, it checks and limits acute inflammation and suppuration when already advanced, and it soothes pain like an anesthetic—in fact it acts better than the best of the treatments for any stage of inflammation, and it is simpler than the simplest.

DISPLACEMENT OF THE FALLOPIAN TUBES TO PRODUCE STERILITY.

As there are occasional instances when an abortion is justifiable as a necessity in saving life, so also are there conditions in which the possible occurrence of pregnancy would expose the patient to danger that it is most desirable to avoid. Routine methods recommended under such circumstances are not infallible, and around their fallibility hangs a perpetual cloud of uncertainty fraught with much anxiety. Therefore Rockey (*Medical Record*, March 17, 1906) asserts his belief that a method of safely and positively insuring sterility should have a proper place in gynecological surgery. With this end in view he has devised an operation and successfully carried it out on four patients.

The method the writer proposes is the displacement of the uterine end of the Fallopian tubes. It is accomplished by three snipes of the scissors and three stitches for each tube. It requires but a moment of time and adds nothing to the risk of an abdominal operation done for any other purpose. When the fundus of the uterus is to be exposed for this operation alone it may be done either through an anterior vaginal or a very short suprapubic incision. The vaginal route is advisa-

ble for this operation only when the outlet is much relaxed, or when anterior colporrhaphy is to be done for the support of a cystocele. In these cases the room is ample, and the surgeon of experience in vaginal operations on the body of the uterus can easily perform it in this way. This route, however, is more difficult and should not be undertaken unless the operator has had practice in this class of work, for there is some danger of injuring the bladder or ureters.

The technique is as follows: When the cornu of the uterus is brought into the field of incision seize the tube near its uterine end with a pair of forceps. Thrust the sharp point of a pair of scissors into the cornu and cut out the uterine end of the tube by a V-shaped incision with two cuts of the scissors. Catch the wedge shaped point of the excised end of the tube with the forceps, draw it out a little between the partly closed blades of the scissors, and cut it off. The severed end of the tube will then slip into the peritoneal sheath and be completely covered by it. Pass one catgut stitch through this cuff, then through the fundus posterior to the inner end of the V-shaped incision from behind forward, and tie it, thus fastening the closed end of the tube back of its original position. Pass two more stitches around the tube and through the cornu to close the V, control the bleeding, and fasten the tube to the outside of the closed cornu.

INTRAPERITONEAL SHORTENING OF THE ROUND LIGAMENTS.

BALDY (*New York Medical Journal*, April 14, 1906) says that he has concluded that other surgical procedures than intraperitoneal shortening of the round ligaments are inadequate for backward displacement of the uterus. The broad ligaments are perforated from their posterior surface by forceps which on emerging on the anterior surface are made to grasp the round ligaments, which are then drawn through to the posterior surface with the forceps. The round ligaments are brought together, and sutured both together and to the uterus low down on its posterior surface at about the position of the internal os. This accomplishes three things: (1) The tilting forward of the uterus to a normal anterior position. (2) The lifting up of the whole pelvic floor from its sagging position. (3) The uplifting and support of the ovaries and tubes. The three results are of necessity a part of each other, and one is as constant as the other. The most important of all, the uplifting and support of the ovaries, is absolute and sure; and this result is accomplished without the slightest pressure of these delicate organs.

The author claims for the intraperitoneal shortening of the round ligament that it gives a fairly sure substitute for the lost elements of support and does absolutely no harm. It allows of pregnancy with a course as natural as if no operation had been performed, and there is no danger to anticipate at its termination.

TRAUMATIC DEFECTS OF THE SKULL AND THEIR RELATION TO EPILEPSY.

ALLEN, SANFORD, and DOLLEY (*Boston Medical and Surgical Journal*, April 12, 1906) report upon a clinical and experimental study of repairs of defects of the skull and the relation of these defects to epilepsy. To determine accurately the relation of traumatism to the production of epilepsy is by no means easy. Grave injuries to the skull are often not followed by epilepsy, while sometimes such manifestations are delayed so long that it is difficult to show any relationship between them. It is a common belief that epilepsy may and often does result from traumatism. Out of 167 skull injuries during the Civil war 23 are reported as suffering from epilepsy. In the Franco-Prussian war there were 571 cases of recovery from wounds of the skull, of which 25 cases developed epilepsy. Traumatic epilepsy may result not from hyperostoses to the skull alone, but from scar tissue formation in the brain itself. The percentage of cures of epilepsy by surgical interference varies greatly in the experience of different surgeons. Some report as low as two to four per cent of cures, while others report as high as 88 per cent. The chief object of the authors' paper is to emphasize the importance of the prevention of epilepsy by early repair of skull defects. There seems to be little question that by the continuance of the irritation which induces epilepsy a condition is established which may continue after the primary cause of the disease has been removed. While cures have been reported following operations as long as seven to seventeen years after injury, every consideration points to the desirability of early operation in traumatic epilepsy provided the cases are suitable for early operation. As v. Bergmann states, operation is indicated in cases having manifestations described as Jacksonian epilepsy.

If epilepsy follows trauma and the removal of bone be necessary for its relief, the defect caused by the operation should be repaired at once. That epilepsy the result of traumatism is to be relieved by permanent skull defects seems wholly improbable. It seems probable that removal of pressure and permanent repair of the skull, restoring its convexity and resistance to external injury, would be far more likely to be followed by permanent benefit. Many methods have been proposed for accomplishing this repair. The use of metal plates is one of long standing, but is not satisfactory. The same is true of celluloid plates.

Horsley in his operations for removal of brain tumors has reimplanted the disk of bone removed by the trephine. This method is applicable in cases in which the disk of bone exists. It does not, however, provide for the covering of old defects where there is no such bone available. Macewen employed fragments of bone removed at the time of operation. These were placed in the defect and served as a scaffolding for the formation of new bone. There have been numerous failures by this method. Porges, Grekow, Muller, and Bunge have published methods of repair of the skull which have been successful. The authors' method is as follows:

The scalp is removed from over the defect in the skull, and the connective tissue covering the brain is carefully dissected away. Since the scar tissue and dura are often inseparable, the pia mater covering the brain tissue may thus be exposed over the entire area. In certain cases in which the injury to the brain tissue has occurred as the result of traumatism, it may be necessary to trim away a portion of the brain with the scissors, since the connective tissue may be firmly connected with the brain tissue itself. The borders of the opening are carefully examined to see if any portion of the bone projects downward, and if so it is removed by means of rongeur forceps. Any hemorrhage which occurs is carefully stopped, since it is an essential part of the operation that all hemorrhage should be controlled before the bone flap is inserted. When the surface upon which the bone flap is to be implanted has thus been made clear and hemorrhage has been checked, the scalp is removed from an added area of the skull of equal size with the opening. In doing this care is taken that the periosteum covering the skull be left intact. It is also important that the portion of skull laid bare be as thick as possible. Thus, the posterior parietal region is preferable to the temporal region. Upon the area thus laid bare a circular or elliptical incision is made, blocking out a portion of periosteum equaling in form and size the defect which is to be covered. A sharp, narrow chisel is then employed to split from the outer surface of the skull the portion of bone adherent to the overlying periosteum. To separate this bone from the skull the blows of the chisel should be short and quick, so that the portion of bone split away reaches no deeper than the diploe. In the removal of this area of bone with the attached periosteum, the tendency, of course, is for the bone to be separated into small fragments, and to roll upward and outward. By placing the graft thus obtained between two gauze sponges moistened in warm normal salt solution and laying it upon the table, it may be flattened out by a few slight blows of the mallet. The plate of bone thus prepared is laid upon the opening in the skull, the bone being next to the brain. The wound is then closed by drawing over it the scalp and suturing it loosely in place. A cigarette drain made up of gauze and surrounded by gutta-percha protective tissue is inserted through the incision at the dependent point, so that any excess of blood may be drained away into the dressing. The dressings are changed ordinarily on the second day in order to remove the cigarette drain, after which a second bandage is applied. This bandage remains in place for perhaps six or eight days longer, or until the wound has entirely healed. By this method seven cases have thus far been operated.

THE TREATMENT OF FLATFOOT.

BERRY (*Albany Medical Annals*, April, 1906) says that the treatment of this condition varies with the advancement of the trouble and the symptoms. In some cases the foot may be rescued by simply directing its proper use, instructing the patient to use the heel-toe walk, holding the feet parallel. Other cases may require simply a pad under the arch or a raising of the inner side of the sole of the shoe. Still other cases may require a special shoe, while the most advanced cases may require severe operative interference.

Flatfoot can be considered a dislocation of slow development. Its reduction along the same lines in which it is produced is applicable. Reduction is done as follows, and must sometimes be done under anesthesia: Extend sharply on the tarsus, thus increasing

the space between the internal cuneiform and the astragalus, then forcibly invert and adduct, and flex again to 90 degrees, maintaining the adducted and inverted positions. This will bring the scaphoid back into place.

Following the reduction the foot is held in proper position by means of adhesive strapping, or in the severe cases by a plaster-of-Paris dressing. The use of adhesive straps combined with a felt pad in the instep for ordinary cases of painful and weak foot is very useful. A patient who has suffered for months may be almost completely relieved from pain in as many hours.

The effect of strapping or plaster-of-Paris dressing is to relieve the muscle spasm, and to stop at this point is useless if a cure is desired. The poor circulation of the foot must be restored by alternate hot and cold douching. The weakened and overstretched muscles and ligaments must be strengthened by massage and carefully regulated gymnastics. An excellent gymnastic exercise to correct the tendency to pronation is to have the patient walk along two boards set up at an angle of 160 to 165 degrees.

Braces are useful in some cases, but should act only as a support and not interfere with the freedom of movement or act as a splint. Extreme spasm, deformity, and inflammatory conditions are contraindications to the use of a brace. A brace should not be used in rigid flatfoot. The most important therapeutic agent is a proper shoe.

EMBOLISM FOLLOWING ABDOMINAL SECTION.

KRUSEN (*American Journal of Obstetrics*, April, 1906) says that during twelve years of active gynecological work he has observed five cases of embolism, four of which resulted fatally. The first case was one of dilatation and curettement with resection of the right ovary. The patient died suddenly six hours after the operation with characteristic symptoms of pulmonary emphysema.

The second case was one in which the small fibroid uterus was removed, and on the fifth day while eating breakfast the patient suddenly became blue, complained of severe pain, and quickly died.

The third case had been operated upon for double hemopyosalpinx. Both tubes were firmly adherent and filled with pus. Double salpingo-oöphorectomy was performed, and the pelvic cavity drained with iodoform gauze through the vagina. On the thirteenth day, while eating her dinner, she exhibited symptoms of pulmonary embolism.

The fourth case was one operated upon for small fibroid uterus. The patient was very anemic on admission and was treated two weeks prior to operation. Two weeks after the operation, while sitting up out of bed for a short time, she developed symptoms of embolism and died in a few minutes.

The fifth case was operated upon for uterine prolapse of the third degree. The uterus was dilated and curetted, the cervix repaired, and anterior colporrhaphy, perineorrhaphy, and ventral suspension were performed. On the second day after operation, while sitting in a chair, she was suddenly taken with a fainting attack and became unconscious for a few moments. She recovered consciousness with an extremely weak pulse, and severe pain and dyspnea, associated with quickened pulse, respiration between 40 and 50, pulse 168, temperature 95°. Atropine, strychnine, and digitalin were administered hypodermically; external heat was applied and oxygen given. The patient was extremely ill for two days, but made a good recovery, and left the hospital in good condition thirty-nine days after admission.

It is possible by having the blood in good condition before operation, the avoidance of excessive loss of blood during operation, and the use of saline infusions after it, to diminish the number of these cases. The anemic patients should be kept in bed in the recumbent position with the avoidance of exertion and straining for a longer period than is customary.

Reviews.

MATERIA MEDICA AND THERAPEUTICS. An Introduction to the Rational Treatment of Disease. By J. Mitchell Bruce, M.A., LL.D., M.D. W. T. Keener & Company, Chicago, 1906. Price $1.75.

Students in English schools have for many years been well acquainted with this excellent little manual of therapeutics, which is devoted more to the consideration of materia medica than to the therapeutic application of drugs. Nevertheless, definite statements concerning the application of remedies are made. The book is, of course, in line with the British Pharmacopœia, and does not include those preparations which are commonly employed in the United States, except in those instances in which drugs are used in the same strength and form in both countries.

When our readers appreciate that this is the forty-ninth thousand of this book which has been published they will have some conception of its popularity. The formulæ which the book contains have been adapted, however, to the new United States Pharmacopœia by Professor Oldberg, of Chicago. Toward the close of the book, after discussing the various preparations which are official in the British Pharmacopœia, Part III deals with the Indian and Colonial Addendum to the British Pharmacopœia, and last but by no means least, in Part IV, we have about 150 pages devoted to general therapeutics. It would be hard to find a small book with more "meat" in it

A Manual of Medical Treatment or Clinical Therapeutics. By I. Burney Yeo, M.D., F.R.C.P. Fourteenth Edition. W. T. Keener & Company, Chicago, 1906. Price $5.00 net.

This small system of therapeutics written by Dr. Yeo has now reached its fourteenth edition, and appears, as many of our readers know, in the form of two small octavo volumes. The present volumes, however, while new in this country, are not so new in England, since the preface to the present edition is dated September, 1902— nearly four years ago. The present edition is new, however, in the sense that the formulæ have been adapted by Professor Oldberg to the standard of strength of the preparations employed in America. The first volume opens with a discussion of the diseases of the organs of digestion, followed by one on the circulatory system, then one upon diseases of respiration, and then a special part upon "Phthisis, or Consumption, or Pulmonary Tuberculosis." On looking over the volume we are impressed with the fact that barring the changes which have been made by Professor Oldberg, the text is practically identical with that which is present in earlier publications of the book; but this is saying a good deal, because these two volumes have always been excellent advisers for the active practitioner.

Leprosy and Fish-eating. A Statement of Facts and Explanations by Jonathan Hutchinson, F.R.S., F.R.C.P., LL.D., D.Sc. Archibald Constable & Company, London, 1906. W. T. Keener & Company, Chicago, 1906. Price $3.25.

For many years, as is well known, Mr. Jonathan Hutchinson has been a leader of the British medical profession, and during that time has done much to form opinion in regard to diseases which have been little understood. He has also, in season and out of season, persistently supported his original view that there is a distinct cause, or relationship, between a fish diet and the development of leprosy, and as the title of this book indicates, he has now presented us with a summary of his views and with the evidence which he has collected in various portions of the world as to the correctness of his opinion. So far as we know, Mr. Hutchinson lacks the support of most students of leprosy in these views, but we are glad that he has presented his evidence in this concise form, since it must be carefully studied before the fish theory as a cause of this disease can be cast aside.

The Health and Care of Baby. A Handbook for Mothers and Nurses. By Louis Fischer, M.D. The Funk & Wagnalls Company, New York, 1906.

This is a small book designed to fulfil the mission indicated in its title. Some of our readers are already familiar with the views held by Dr. Fischer in regard to this matter, as he is the author of a book upon "Infant Feeding in Health and Disease" and a "Textbook on Infancy and Childhood." The present volume is prepared in such a way as to be useful to the nurse and mother, and is not intended for medical readers alone. The advice which is given in it is excellent, and it may be cordially commended to the class of persons for whom it was prepared.

The Theory and Practice of Medicine. In Two Volumes. By Frederick T. Roberts, M.D., B.Sc., F.R.C.P. Tenth Edition. H. K. Lewis, London, 1905.

For fully twenty-five years Dr. Roberts's well known Treatise upon the Practice of Medicine has been a standard work. Since the ninth edition appeared some years ago great advances have been made in the subject of which it deals, and the author has prepared the present volumes with the object of bringing its text thoroughly up to date. In this he has only in part succeeded. The division of the volume into two smaller ones possesses the advantage that they are more easily handled, and has enabled him to prepare a mass of text which could hardly be placed inside of one cover, the two volumes covering nearly 1400 pages independent of the indices. Each volume contains not only a summary of our knowledge concerning the subjects treated, but also we find that the pages are impressed with the author's personal experience. The author evidently believes that "primary idiopathic peritonitis" may occur, although he points out that these cases are daily becoming more rare with a better understanding of

infection. We are glad to see that he emphasizes the necessity of operative interference in most cases, although he believes that a number of leeches applied to the abdominal wall may be useful. The medical treatment of the condition, however, which he advises we think could be carried out only with difficulty in a large number of cases, particularly in the employment of alcoholic stimulants. In the article on Appendicitis we find that he divides the condition into catarrhal appendicitis, ulcerative appendicitis, and infective appendicitis with necrosis and sloughing. We regret to find that he does not give credit to Fitz for his epoch-making work in connection with this disease. We do not believe that the administration of salol, poppy fomentations, nor painting the surface of the abdomen with glycerite of belladonna, will be of advantage in such cases.

As with many other books which have reached a similar age, many instances can be cited in which the author has attempted to adjust modern views to those expressed in earlier editions, with the result that the reader is left in doubt as to what to do, the author having been too conservative to throw overboard older methods of practice and to urge plans which are commonly accepted as correct at the present time.

In the article on smallpox we are amazed to find no reference to the recent investigations which have been made concerning the specific organism which causes this disease. Burdon-Sanderson is quoted as having found micrococci in vaccine lymph, and Klein is said to have discovered a spore-forming bacillus in similar fluid and in the smallpox pustule. So, too, in the discussion of the pathology of the disease nothing has been said of the epoch-making researches of Councilman, Brinckerhoff, and other co-laborers.

THE EYE AND NERVOUS SYSTEM. Their Diagnostic Relations. By various Authors. Edited by William Campbell Posey, A.B., M.D., and William G. Spiller, M.D. The J. B. Lippincott Company, Philadelphia and London, 1906. Price $6.00.

This volume of nearly a thousand pages, including the index, is formed by the contributions of twenty-two well-known American ophthalmologists and neurologists, including such names as Burr, Dercum, Lloyd, Mills, Sachs, Spiller, and Weisenburg amongst the neurologists, and Duane, Jackson, de Schweinitz, Weeks, Wood, and Würdemann amongst the ophthalmologists. As the editors point out in their preface, there has been heretofore no work which has dealt in an adequate way with the close relationships which exist between these two departments of medicine, at least so far as English and American publications are concerned. Such an omission is of importance, as a knowledge of neurology is indispensable to the ophthalmologist, and an acquaintance with ophthalmology is of the greatest service to neurologists. The book opens with a chapter upon the Intracranial Portion of the Encephalic Nerves, especially those related to the eye, by Dr. Spiller, and this is followed by another chapter upon Sight, the Structure and Optical Properties of the Eye, by Dr. Souter. The third chapter by Mills deals with the Psychology of the Visual Act and the Focal Diseases of the Visual Cortex. This chapter covers nearly one hundred pages, and is written in the complete, exhaustive, and accurate manner which is so characteristic of Dr. Mills's contributions to neurological literature. The fourth chapter, by Dr. Wood, is upon the general examination of the exterior of the eye and perimetry, color-blindness, etc., and is followed by Dr. Duane with an article upon the extra-ocular muscles, and he, in turn, by Dr. Weeks upon the intra-ocular muscles. It is not possible in the brief space which we can give to this notice to call attention to the remaining seventeen chapters. Among the most important of these is one upon Neuroses and Psychoses, by Dr. de Schweinitz; one upon the Surgical Treatment of Intracranial Lesions Causing Disturbances of Vision, by Dr. Frazier; and one by Dr. Würdemann upon Diseases of the Retina and Optic Nerve. The facts which we have mentioned in regard to this valuable contribution to medical literature serve to indicate the value of the book to the class of practitioners for which it was prepared. We have no doubt that it will at once become a standard work of reference upon this important subject.

OPERATIVE OTOLOGY. Surgical Pathology and Treatment of Diseases of the Ear. By Clarence J. Blake, M.D., and Henry O. Reik. D. Appleton & Co., New York and London, 1906.

Under this title Blake has published an admirable book dealing with the surgery of the ear. As is usual in such works the opening chapters are devoted to surgical anatomy and aseptic technique. Thereafter are taken in order the Diseases of the Auricle and External Auditory Canal; Diseases of the Tympanic Membrane and Tympanum; The

Possible Complications and Consequences of Suppurative Otitis Media; Middle-ear Operations; Mastoid Operations; Adventitious Aural Surgery. Under the latter heading are included adenoids, subcutaneous and intravenous infusions, and lumbar puncture. Thereafter there follows an appendix containing among other valuable sections one upon the localizing symptoms of brain abscess and a description of hearing tests as an aid in locating tympanic lesions. The book is excellently illustrated, printed in singularly clear type, and is one that can be commended to the student, the practitioner, and the specialist without reservation.

THE NATURE AND TREATMENT OF CANCER. (Some Methods of Hypodermic Medication in the Treatment of Inoperable Cancer.) By John A. Shaw-Mackenzie, M.D. Lon. Third Edition, Revised and Enlarged. Bailliere, Tindall & Cox, London, 1906.

This book is in the main a collection of cases reported with minute details and convincing in their results. A brief discussion as to the nature of cancer leaves the reader much confused as to the author's views on the subject, though with profound admiration for his dexterity in extracting the most abstruse portions of the theories of the modern laboratory workers. It is pointed out that cancer left to itself grows most unevenly and at times undergoes resolution. The author expresses the belief that he has observed favorable results from hypodermic injections of China turpentine, soap, ox-gall, and trypsin. He has, however, dealt with cases quite beyond help in any other way, and his teaching is at least worthy of careful consideration.

Correspondence.

LONDON LETTER.

BY G. F. STILL, M.D., F.R.C.P.

The signs of the times are nowhere more evident than in the march of events in medical London at the present time; in all departments there is the desire for the *entente cordiale*, which has become the dominant note in the international politics of England. A few days ago the oldest medical society in London gathered in overwhelming numbers to hear Professor Kocher, of Berne, deliver an oration on the pathology of the thyroid gland. It is seldom that any of our scientific societies present so crowded and enthusiastic an audience as welcomed the distinguished professor. This month also one of our youngest societies, the Society for the Study of Disease in Children, has been addressed by M. Broca, of Paris, who was subsequently entertained by many leading physicians and surgeons at a public dinner. Dr. Broca took as his subject appendicitis in children. A course of three lectures is to be delivered at the Royal Institute of Public Health by Prof. E. Metchnikoff, beginning this week, and no doubt a name so famous in pathology will attract a large gathering, even though the discourse be in a tongue not "understanded of the people," for we hear it is to be delivered in French. Arrangements are afoot to entertain the great pathologist at a dinner which will bring together many of the best known names in that department in this country.

Nor are the specialists behindhand in widening their ideas by an infusion of Continental specialism. The Dermatological Society is to be addressed by Dr. Sabouraud, of Paris, the well-known authority on ringworm; and although we are more accustomed to connect the name of Sabouraud with spores and their varieties than with modes of treatment, we are looking forward to his advice to-day on the radio-therapeutics of ringworm.

But English receptiveness extends beyond our immediate neighbors, and medical science in London is catholic in the best sense of the word. While distinguished French, German, or Swiss are addressing this and that society, a Japanese surgeon of highest eminence in Japan, Baron Takaki, has been telling the secrets of sanitation in the Japanese navy and army to a crowded audience at St. Thomas's Hospital; and there is not the least doubt that if Russia should send us a scientist whose work has helped onward the progress of medicine in any direction, he would be received with as much respect and honor as our allies from Japan, for science knows no distinctions of race or politics.

If, however, science is untrammeled by politics, some of our politicians can boast without fear of contradiction that they are untrammeled by science: one of our members of Parliament has just made the ludicrous statement that "100,000 people are killed every year in our own country alone by vaccination!" Mr. Arnold Lupton, M.P., who is responsible for this choice and remarkable dictum, explains the simple and ingenious method by which he arrives at his figures: since the introduction of compulsory vaccination the mortality from fifteen various dis-

eases is found to have increased. True, the population has increased, and it is nothing to this imperturbable statistician that there are numerous other factors which must have influenced the mortality from each and all of these diseases; true, there is no apparent connection of any sort between vaccination and the fifteen diseases in which there has been increase of mortality—such trifles disturb not the master mind; indeed, we rather suspect that his indictment against vaccination will become still heavier soon, for will there not be a further addition to this mortality owing to the increased number of deaths in vaccinated persons who are knocked over by the new motor omnibuses? There have been complaints lately that the present generation has produced nothing but mediocrity in intellectual development in this country, but surely there are amongst the ranks of our antivaccinators and antivivisectionists men (and old women of both sexes) whom none could accuse of mediocrity. The latter group of antibodies is just rejoicing in the appointment of a Royal Commission to inquire into this whole subject of vivisection, so we may look forward confidently to some more remarkable statements by the antivivisectionists characterized by little logic and less veracity.

Faddism and humbug are close akin, and whilst these various agitators are taking advantage of the new government to air their particular fads, "Christian science"—and never was a worse misnomer than the name of Christian applied to such a deplorable perversion of Christianity—has been much in evidence during the past month owing to the case of Major White, who was treated by "Christian scientists" for fracture of the spine, with the result that he died of sloughing bed-sores, and that Dr. Adcock, who attended him as a "Christian scientist," has been considered guilty of manslaughter by the coroner's jury, and has now to take his trial on this charge. In the same month a poor little child has died in London of purulent bronchitis and bronchopneumonia, having been deprived of all medical treatment; its parents belonged to the sect calling themselves the "Peculiar People," one of whose tenets is the sinfulness of calling in a doctor in illness; "Elders" are called instead, to pray over and anoint the sick. The father has now been charged with manslaughter. As the coroner pointed out in the Christian science case, the Peculiar People are mostly simple, ignorant folk, who at least are not guilty of hypocrisy, but the Christian scientists concerned in the recent case "admitted that what he or she had done had been done for hard cash."

A pretty sight to-day, and one which is attracting many ladies well known in London society, is the quaint representation of a street in old Cheapside which has been erected in the gardens of Lincoln's Inn, where the musty precincts of the law are enlivened for the nonce by many a dame and many a goodly squire in ruffle and sash, and gay costume of the old Elizabethan days; the why and wherefore of which is an effort to raise the large sum which is still lacking for the removal of King's College Hospital from its present position near Lincoln's Inn Fields in central London to the suburban and poor district of Camberwell.

At the West London Medicochirurgical Society this month there was an interesting discussion on the manifestations of influenza. Dr. Seymour Taylor, speaking of the remarkable variety of its manifestations, said that the differences were due probably to the difference of soil which the microörganism found in different persons. Most of the speakers agreed that in particular epidemics a particular type of manifestation had prevailed: in one epidemic it was chiefly pulmonary, in another chiefly gastrointestinal. The frequency of nervous symptoms in influenza, such as neuroses and neuritis, was mentioned; and the danger of syncope from severe cardiac depression was emphasized.

A sad event of the month is the untimely death of Dr. J. H. Bryant, one of the physicians of Guy's Hospital. He was found comatose in bed from the effects of a large dose of chloral which he had recently been taking for insomnia. He was well known and very popular among the younger generation of Guy's men, to which he belonged, and his career had been one of exceptional brilliancy. He was gold-medalist in medicine at the University of London, and both in medicine and surgery at Guy's Hospital, and had contributed many valuable articles to text-books and journals.

BERLIN LETTER.

By Octave Rozenraad, M.D., Berlin.

The Russo-Japanese war has not only been a lesson on warfare to the nations of the world, but also to the medical profession in general. I need not point to the well-known fact that bullets passed through the human

body without seriously injuring it, nor to the wonderful organization of the Japanese "Corps de Santé." I wish to speak of the large number of mental troubles with which the Russian soldiers were afflicted. Enormous indeed was the number of the insane, and mental troubles have ever since been on the increase with the Russian population. Germany being the geographical neighbor of Russia, has had the sad privilege of receiving a great number of the mental victims of the war. It is to be noted that the outburst of mental troubles among the Russians was almost epidemic. The explanation of this can hardly be given, that one mind infected the other mind, as, for instance, with religious ecstasy—the cause is rather to be looked for in the food. This would coincide with Dr. Kraepelin's theory that some mental diseases —for instance, dementia præcox and paralysis—are not due to a bacillus infecting the ganglia of the brain, but to an autointoxication. I have at present under my treatment a young Russian with dementia præcox, who was in the war, and the symptoms of his case, which is not yet in an advanced stage, seem to prove an autointoxication or "self-poisoning." At the last meeting of specialists for mental and nervous diseases at Munich, in Dr. Kraepelin's clinic a few weeks ago, Nissl and Binswanger maintained that there was no proof that toxins as the cause of mental alienation did not exist. Dr. Nissl showed microscopic slides of some nerve cells, and the morbid changes they had undergone with paralysis. Let us hope that Dr. Nissl's research is no futile work.

The experiences gained on the field of battle during the last Russo-Japanese war were discussed at a recent congress of surgery held in Berlin. Dr. von Manteufel in a very interesting report on the subject said that the wounded had to be transported long distances, as the artillery reached some five miles. Few operations except amputations had to be made, as it was noted that the wound, when left to itself, gave a better result than when it had been disinfected on the field of battle. This certainly is a most striking result. Very interesting were the remarks that a bullet had passed through the thorax, even affecting the heart, and yet did not cause any considerable harm. Even the operation which we have been taught to perform at once—the ligature of an artery—is a superfluous operation, according to Dr. Brentano, who said that compression and bandage are sufficient. The percentage of the wounded was not greater than during the Boer war or during the Franco-German war in 1870. It seems that surgery, however wonderful trepanations skilfully performed may be, is being more and more restricted to a few operations the performance of which is *conditio sine qua non*. Cancer is nowadays treated by radiotherapy, and even an abscess is successfully treated by Bier's method of suction and hyperemia. I reported on this method in my last letter.

The operation of thyreotomy was discussed at the meeting for internal medicine. Dr. Kraus, professor at Berlin, insisted on the fact that the causes of Graves's disease (morbus basedowii) are not yet sufficiently known. Besides the affection of the thyroid gland he supposes that another toxin circulates. The colloid substance found post mortem in the affected gland he supposes to be the toxin, but he doubts whether this colloid is formed in the thyroid gland.

In the treatment of blood diseases with *x*-rays Drs. Linser and Helber have made interesting research work. They have proved that the white blood-corpuscles are destroyed by the rays during circulation. In the blood-forming organs only a few remains of destroyed leucocytes are found. They found that after an application of the rays the kidneys were affected. Drs. Schieffer, Meyer, and Eisenreich have obtained good results from treatment of leukemia with *x*-rays, a treatment which was employed some time ago in Chicago by Dr. Senn.

In the treatment of tuberculosis Marmorek's serum is still discussed. Whereas Levin saw very good results in the Scandinavian Hospital with 128 cases, of which 65 per cent recovered, Drs. Stadelmann and Benfey have not seen the same good results. They found an increase of temperature during six days, combined with urticarial eruptions and filtration of the glands.

Berlin and the medical profession are at this moment having a violent controversy about Virchow's statue. At a committee Mr. Klimch's statue was decided upon. Now this so-called statue is practically no statue at all, but has on the pedestal an allegorical figure of a man fighting with a wild beast, resembling Hercules; Virchow's head being represented on the lower part. Though Virchow's figure may not be as imposing as the figure of Bismarck in front of the Reichstag, the medical profession does not wish to see Virchow, Bismarck's political opponent, in front of the Charité on a microscopic slide.